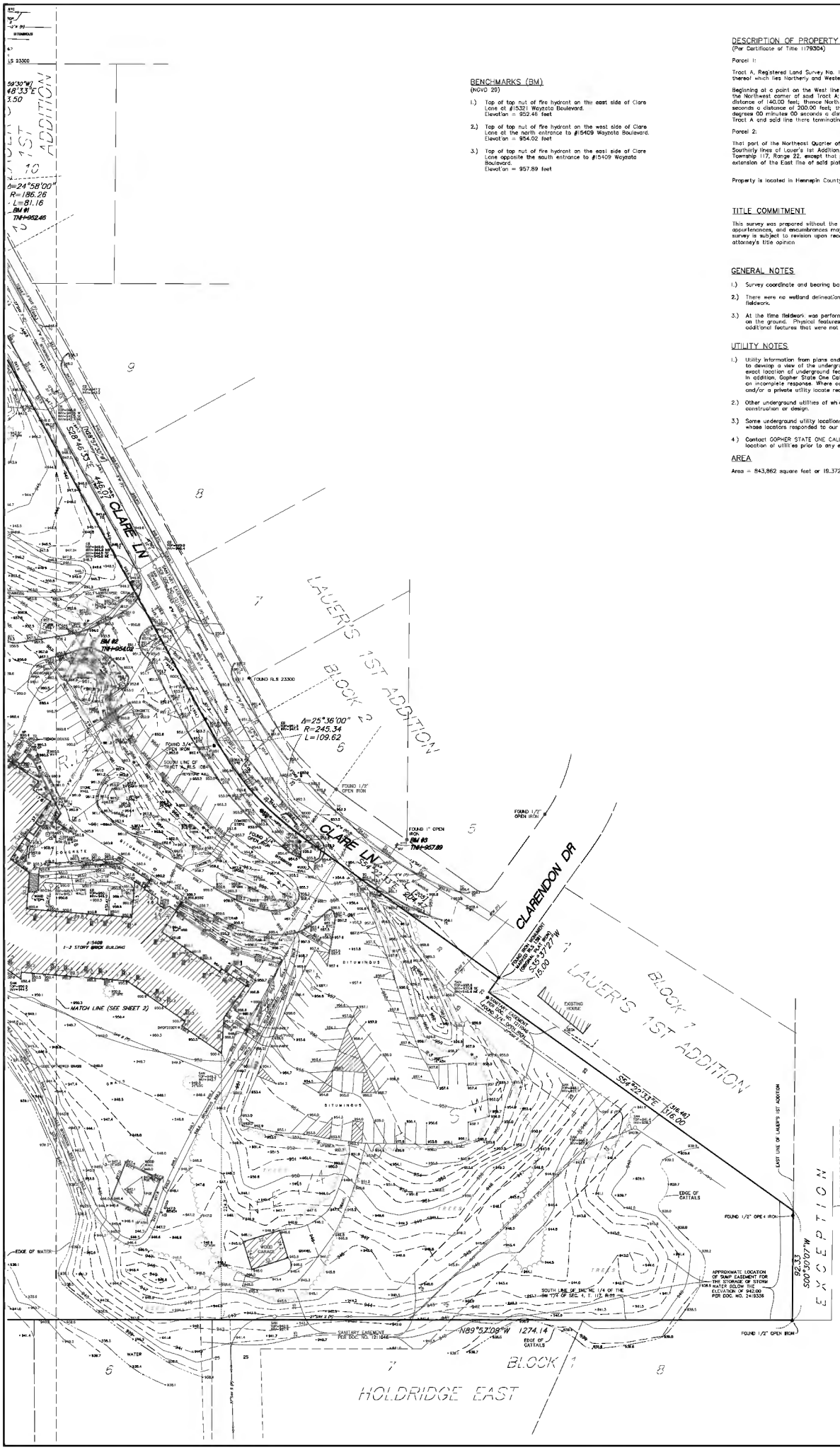



## BENCHMARKS (BM)
(NGVD 29)

1.) Top of top nut of fire hydrant on the east side of Clare Lane at #15321 Wayzata Boulevard.
Elevation = 952.46 feet

2.) Top of top nut of fire hydrant on the west side of Clare Lane at the north entrance to #15409 Wayzata Boulevard.
Elevation = 954.02 feet

3.) Top of top nut of fire hydrant on the east side of Clare Lane opposite the south entrance to #15409 Wayzata Boulevard.
Elevation = 957.89 feet

## DESCRIPTION OF PROPERTY SURVEYED
(Per Certificate of Title 1179304)

Parcel 1:

Tract A, Registered Land Survey No. 1084, County of Hennepin, except that part thereof which lies Northerly and Westerly of the following described line.

Beginning at a point on the West line of said Tract A distant 330.00 feet South of the Northwest corner of said Tract A; thence East at a right angle to said West line a distance of 140.00 feet; thence North deflecting to the left 90 degrees 00 minutes 00 seconds a distance of 200.00 feet; thence Northeasterly deflecting to the right 37 degrees 00 minutes 00 seconds a distance of 78.66 feet to the North line of said Tract A and said line there terminating.

Parcel 2:

That part of the Northeast Quarter of the Southwest Quarter lying Southerly of the Southerly lines of Lauer's 1st Addition, and Registered Land Survey No. 1084, Section 4, Township 117, Range 22, except that part thereof which lies East of the Southerly extension of the East line of said plat of Lauer's 1st Addition.

Property is located in Hennepin County, Minnesota.

## TITLE COMMITMENT

This survey was prepared without the benefit of current title work. Easements, appurtenances, and encumbrances may exist in addition to those shown hereon. This survey is subject to revision upon receipt of a current title insurance commitment or attorney's title opinion.

## GENERAL NOTES

1.) Survey coordinate and bearing basis: Hennepin County Coordinate System

2.) There were no wetland delineation markers observed in the process of conducting the fieldwork.

3.) At the time fieldwork was performed for this survey, there was a significant amount of snow on the ground. Physical features were located to the best of our ability, but there may be additional features that were not visible and, therefore, not shown hereon.

## UTILITY NOTES

1.) Utility information from plans and markings was combined with observed evidence of utilities to develop a view of the underground utilities shown hereon. However, locking excavation, the exact location of underground features cannot be accurately, completely and reliably depicted. In addition, Gopher State One Call locate requests from surveyors may be ignored or result in an incomplete response. Where additional or more detailed information is required, excavation and/or a private utility locate request may be necessary.

2.) Other underground utilities of which we are unaware may exist. Verify all utilities critical to construction or design.

3.) Some underground utility locations are shown as marked onsite by those utility companies whose locators responded to our Gopher State One Call, ticket number 163220413.

4.) Contact GOPHER STATE ONE CALL at 651-454-0002 (800-252-1166) for precise onsite location of utilities prior to any excavation

## AREA

Area = 843,862 square feet or 19.372 acres

## LEGEND

● Denotes found iron monument marked P.L.S 43933 unless otherwise noted

| | |
|---|---|
| AC | Denotes air conditioner |
| AGP | Denotes above ground pipe |
| AIS | Denotes advertising/information sign |
| BE | Denotes building entrance |
| BTC | Denotes top of bituminous curb |
| BTL | Denotes beaver toll curb |
| CB | Denotes catch basin |
| CBOX | Denotes control box |
| CBX | Denotes communication box |
| CMH | Denotes communication manhole |
| CMP | Denotes corrugated metal pipe |
| COL | Denotes building column |
| DG | Denotes drain grate |
| DIP | Denotes ductile iron pipe |
| EB | Denotes electric box |
| EM | Denotes electric meter |
| EMGYP | Denotes guy pole with electric meter |
| FH | Denotes fire hookup |
| FP | Denotes flag pole |
| FW | Denotes face of walk |
| G | Denotes gutter |
| GM | Denotes gas meter |
| GP | Denotes guard post |
| GW | Denotes guy wire |
| HCPB | Denotes handicap door push button |
| HCR | Denotes handicap ramp |
| HCS | Denotes handicap sign |
| HH | Denotes hand hole |
| HYD | Denotes fire hydrant |
| INV | Denotes structure invert |
| LA | Denotes landscaping |
| LD | Denotes loading dock |
| LP | Denotes light pole |
| MC | Denotes metal cover |
| MH | Denotes manhole |
| MRAIL | Denotes metal railing |
| OHU | Denotes overhead utility lines |
| (P) | Denotes per plan |
| PCP | Denotes polyethylene pipe |
| PGE | Denotes playground equipment |
| PIV | Denotes post indicator valve |
| PKS | Denotes parking sign |
| PPU | Denotes power pole with underground utility |
| PVC | Denotes polyvinylchloride pipe |
| RCP | Denotes reinforced concrete pipe |
| RD | Denotes roof drain |
| SAN | Denotes sanitary manhole |
| SAN S | Denotes sanitary sewer |
| SMH | Denotes storm manhole |
| ST S | Denotes storm sewer |
| TC | Denotes top of concrete curb |
| TCS | Denotes traffic control sign |
| TD | Denotes trench drain |
| TRANS | Denotes transformer |
| UGC | Denotes underground communication line |
| UGE | Denotes underground electric line |
| V | Denotes vent |
| VCP | Denotes vitrified clay pipe |
| VP | Denotes vent pipe |
| W | Denotes water line |
| WV | Denotes water valve |
| ARB | Denotes Arborvitae |
| BAS | Denotes Basswood tree |
| BIR | Denotes Birch tree |
| BOX | Denotes Boxelder tree |
| CED | Denotes Cedar tree |
| COT | Denotes Cottonwood tree |
| CRAB | Denotes Crabapple tree |
| LOC | Denotes Locust tree |
| MPL | Denotes Maple tree |
| PIN | Denotes Pine tree |
| POP | Denotes Poplar tree |
| SHB | Denotes shrub |
| SPR | Denotes Spruce tree |
| TR | Denotes deciduous tre |

I hereby certify that this survey, plan, or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota.

Dated this 16th day of January, 2020

SUNDE LAND SURVEYING, LLC.

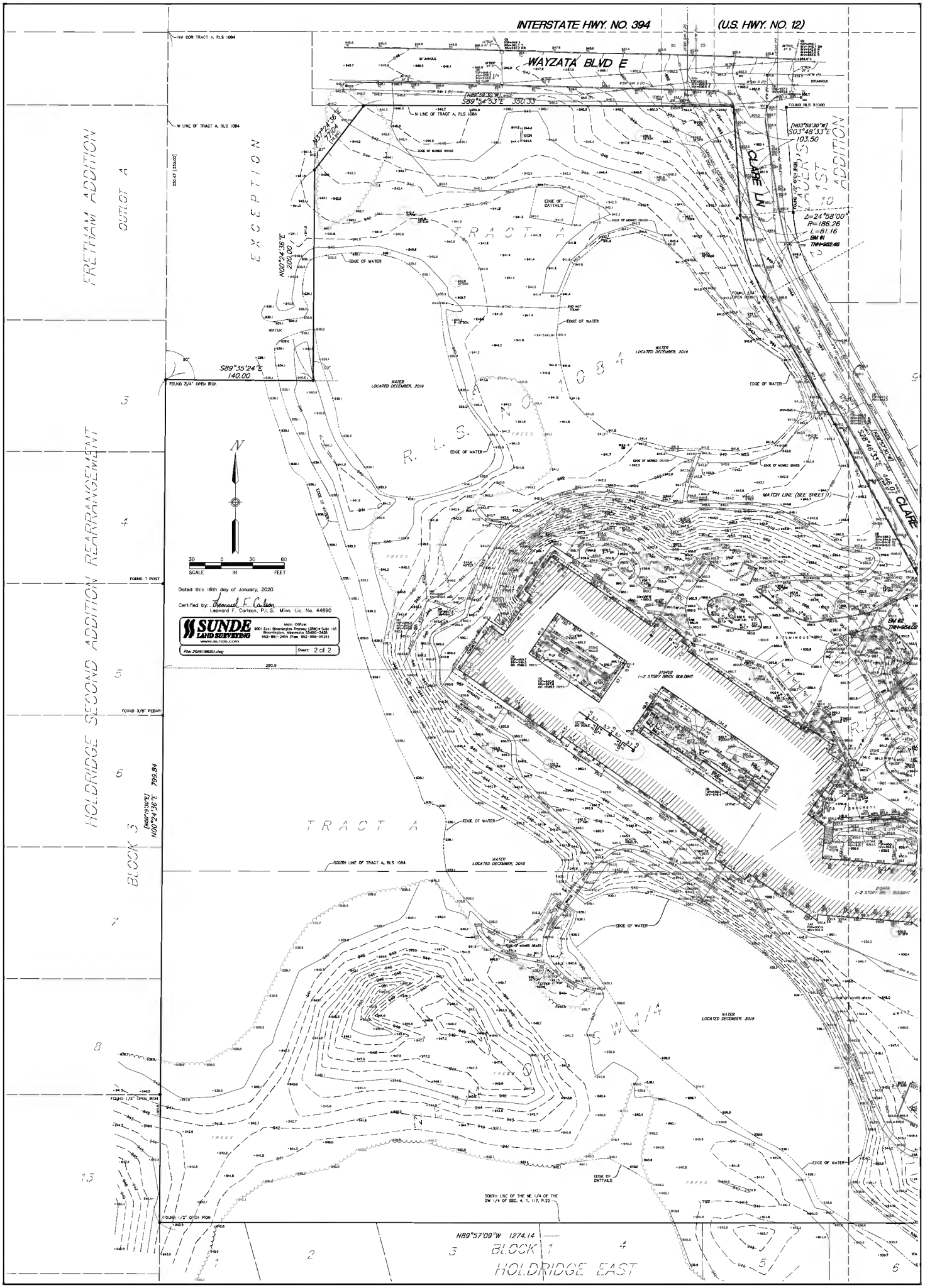
By: Leonard F. Carlson
Leonard F. Carlson, P.L.S. Minn. Lic. No. 44880

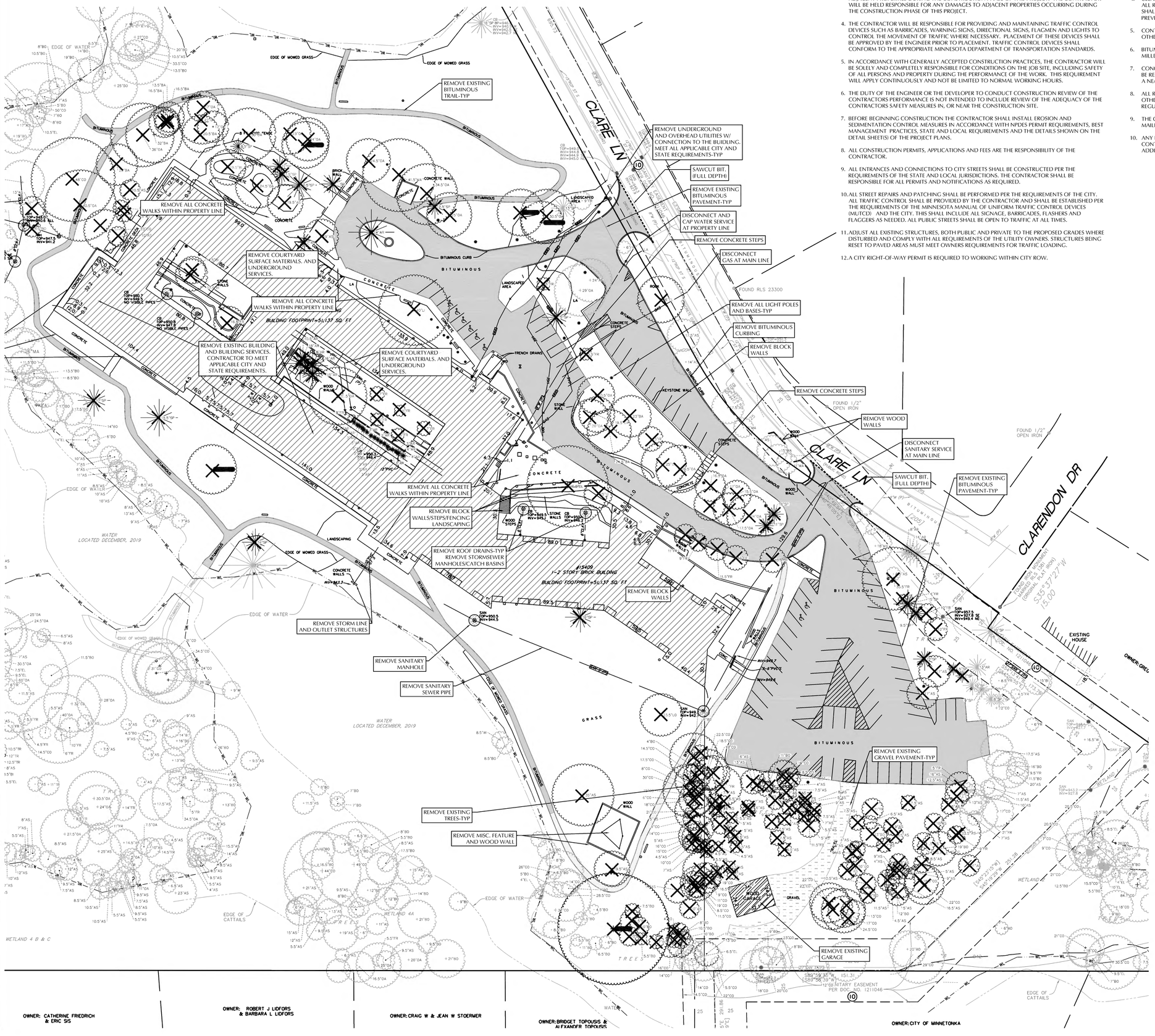
| Revision | By | Date |
|---|---|---|
| | NDN | |

Drawing Title:
BOUNDARY, LOCATION, TOPOGRAPHIC and UTILITY SURVEY FOR:
GOLDEN LIVING
15409 Wayzata Boulevard, Minnetonka, MN

SUNDE LAND SURVEYING
WWW.SUNDELAND.COM
Main Office:
6001 East Bloomington Freeway, (Hwy) Suite 115
Bloomington, Minnesota 55420-3418
952-881-2455 (Fax: 952-888-9581)

| | |
|---|---|
| Project: 2019-152 By/Proj: 1086/01 | Date: 01/16/2020 |
| Township: 117 Range: 22 Section: 04 | Sheet: 1 of 2 |
| File: 2019152001.dwg | |


INTERSTATE HWY. NO. 394
(U.S. HWY. NO. 12)
WAYZATA BLVD E
CLAIRE LN
CLAIRE
FRETHAM ADDITION
OUTLOT A
HOLDRIDGE SECOND ADDITION REARRANGEMENT
HOLDRIDGE EAST
BLOCK 1
BLOCK 5
TRACT A
EXCEPTION
N89°58'32"W 350.33
S89°54'53"E 350.33
S89°35'24"E 140.00
N00°24'36"E 200.00
N00°24'36"E 199.84
S28°46'33"E 445.07
N89°57'09"W 1274.14
Δ=24°58'00"
R=186.26
L=81.16
SM #1
TNH-952.46
SM #2
TNH-954.02
MATCH LINE (SEE SHEET 1)
SCALE IN FEET
Dated this 16th day of January, 2020
Certified by: Leonard F. Carlson
Leonard F. Carlson, P.L.S. Minn. Lic. No. 44890
SUNDE LAND SURVEYING
www.sunde.com
File: 20191580D1.dwg
Sheet: 2 of 2
EDGE OF WATER
WATER
LOCATED DECEMBER, 2019
EDGE OF MOWED GRASS
EDGE OF CATTAILS
TREES
FOUND 3/4" OPEN IRON
FOUND T POST
FOUND 3/8" REBAR
FOUND 1/2" DRILL IRON
FOUND 1/2" DRILL IRON
SOUTH LINE OF TRACT A, RLS 1084
SOUTH LINE OF THE NE 1/4 OF THE SW 1/4 OF SEC. 4, T. 117, R.22
1-2 STORY BRICK BUILDING
1-2 STORY BUILDING
BITUMINOUS
CONCRETE




## GENERAL NOTES

1. MINNESOTA STATE STATUTE REQUIRES NOTIFICATION PER "GOPHER STATE ONE CALL" PRIOR TO COMMENCING ANY GRADING, EXCAVATION OR UNDERGROUND WORK.
2. THE CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES AND TOPOGRAPHIC FEATURES PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR VARIATIONS FROM THE PLANS.
3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING THE CONSTRUCTION PHASE OF THIS PROJECT. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGES TO ADJACENT PROPERTIES OCCURRING DURING THE CONSTRUCTION PHASE OF THIS PROJECT.
4. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING TRAFFIC CONTROL DEVICES SUCH AS BARRICADES, WARNING SIGNS, DIRECTIONAL SIGNS, FLAGMEN AND LIGHTS TO CONTROL THE MOVEMENT OF TRAFFIC WHERE NECESSARY. PLACEMENT OF THESE DEVICES SHALL BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT. TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE APPROPRIATE MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARDS.
5. IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS ON THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING THE PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
6. THE DUTY OF THE ENGINEER OR THE DEVELOPER TO CONDUCT CONSTRUCTION REVIEW OF THE CONTRACTORS PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTORS SAFETY MEASURES IN, OR NEAR THE CONSTRUCTION SITE.
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12. A CITY RIGHT-OF-WAY PERMIT IS REQUIRED TO WORKING WITHIN CITY ROW.

## SITE DEMOLITION NOTES

1. CONTRACTOR SHALL REMOVE AND/OR RELOCATE EXISTING PRIVATE UTILITIES AS NECESSARY. CONTRACTOR TO COORDINATE ACTIVITIES WITH UTILITY COMPANIES.
2. CONTRACTOR SHALL PROTECT SURFACE AND SUBSURFACE FEATURES NOT NOTED FOR REMOVAL.
3. CONTRACTOR TO CLEAR AND GRUB EXISTING VEGETATION WITHIN CONSTRUCTION LIMITS, STRIP TOP SOIL, AND STOCKPILE ON-SITE. REFER TO GRADING PLAN AND SWPPP FOR SEDIMENT AND EROSION CONTROL REQUIREMENTS.
4. CLEAR AND GRUB AND REMOVE ALL TREES, VEGETATION AND SITE DEBRIS PRIOR TO GRADING. ALL REMOVED MATERIAL SHALL BE HAULED FROM THE SITE DAILY. EROSION CONTROL MEASURES SHALL BE IMMEDIATELY ESTABLISHED UPON REMOVAL. SEE THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP).
5. CONTRACTOR SHALL REMOVE ALL SITE SURFACE FEATURES WITHIN REMOVAL LIMITS UNLESS OTHERWISE NOTED.
6. BITUMINOUS PAVEMENT REMOVALS ARE TO BE MADE TO A VERTICAL SAW CUT OR TO A NEAT MILLED EDGE.
7. CONCRETE PAVEMENT, SIDEWALK, CURB & GUTTER AND OTHER POURED CONCRETE ITEMS ARE TO BE REMOVED TO AN EXISTING EXPANSION OR CONTRACTION JOINT. SAW CUT AS NECESSARY FOR A NEAT EDGE OF REMOVAL.
8. ALL REMOVAL ITEMS SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS SPECIFIED OTHERWISE AND SHALL BE DISPOSED OF OFF-SITE IN A MANNER MEETING ALL APPLICABLE REGULATIONS.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF ALL SIGNS, MAILBOXES, ETC.
10. ANY DAMAGE TO ITEMS NOT NOTED TO BE REMOVED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPAIRED OR REPLACED TO ORIGINAL CONDITION WITH NO ADDITIONAL COMPENSATION.

## DEMOLITION LEGEND:

- REMOVE EXISTING BUILDING
- REMOVE EXISTING BITUMINOUS PAVING
- REMOVE EXISTING GRAVEL PAVEMENT
- REMOVE EXISTING MANHOLES, POWER POLES, LIGHT POLES, BOLLARDS, PARKING METERS, SIGNS, ETC.
- REMOVE EXISTING TREES

SCALE IN FEET: 0 30 60

CALL BEFORE YOU DIG!
Gopher State One Call
TWIN CITY AREA: 651-454-0002
TOLL FREE: 1-800-252-1166

**WARNING:**

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# MINNETONKA SENIOR APARTMENTS

MINNETONKA, MN

GRECO

607 WASHINGTON AVE. N. SUITE 100
MINNEAPOLIS, MN 55401

LOUCKS
PLANNING
CIVIL ENGINEERING
LAND SURVEYING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
7200 Hemlock Lane, Suite 300
Maple Grove, MN 55369
763.424.5505
www.loucksinc.com

**CADD QUALIFICATION**



**SUBMITTAL/REVISIONS**

| | |
|---|---|
| 10/18/23 | C TY SUBM TTAL |

**PROFESSIONAL SIGNATURE**

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

PJ Disch - PE

| | |
|---|---|
| License No. | 49933 |
| Date | - |

**QUALITY CONTROL**

| | |
|---|---|
| Loucks Project No. | 23055A |
| Project Lead | PJD |
| Drawn By | DDL |
| Checked By | PJD |
| Review Date | 10/18/23 |

**SHEET INDEX**



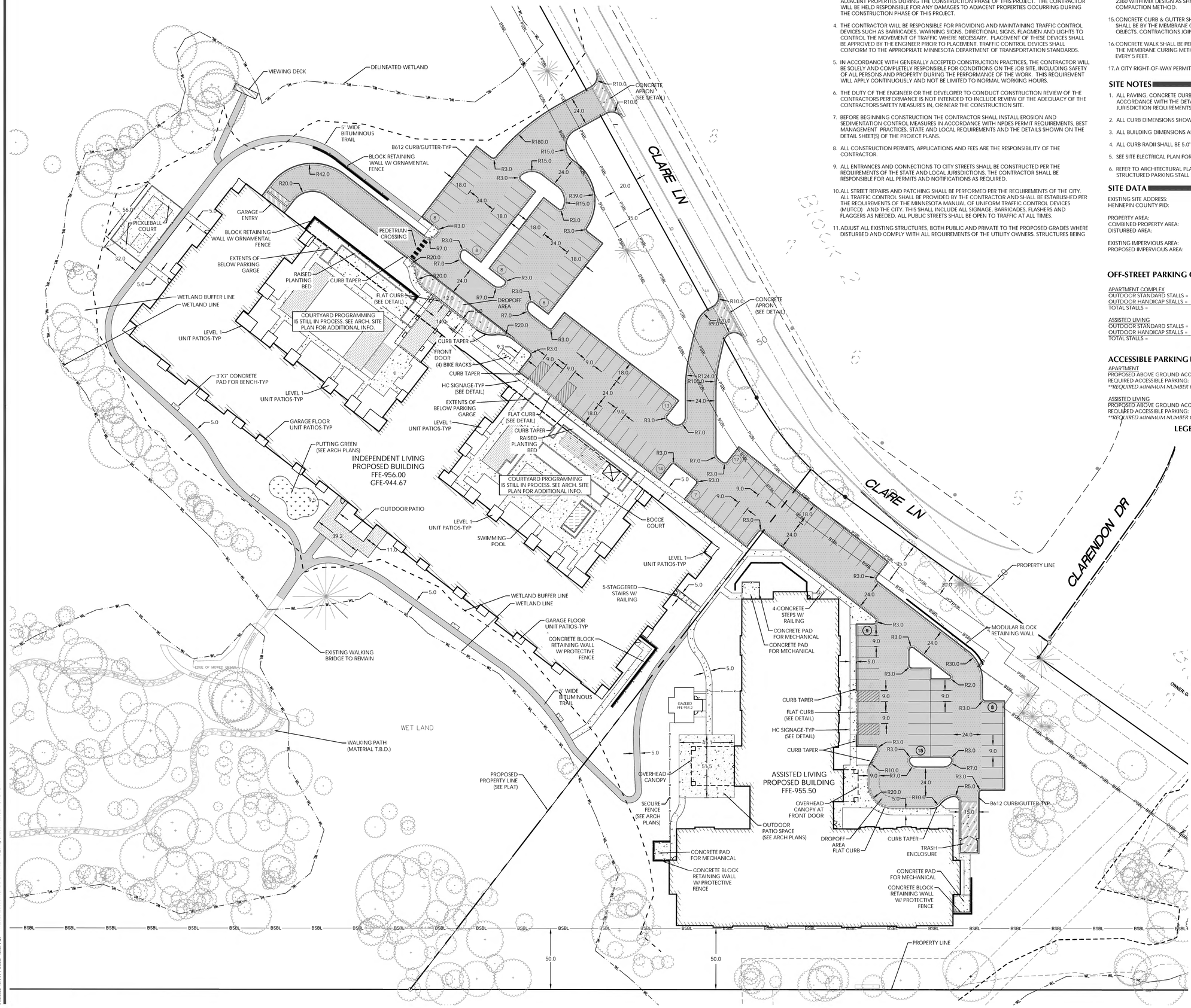
# DEMLITION PLAN

# C1-1

Plotted: 10/18/2023 10:47 AM W:\2023\23055A\CADD DATA\CIVIL\dwg Sheet Files\C1-1 DEMO PLAN

NOTE:
EXISTING CONDITIONS INFORMATION SHOWN IS FROM A TOPOGRAPHIC AND BOUNDARY SURVEY PROVIDED BY SUNDE SURVEY COMPANY, DATED DECEMBER 28, 2021

0 30 60
SCALE IN FEET

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12. SUBGRADE PREPARATION SHALL BE PERFORMED IN ACCORDANCE WITH MNDOT 2112. THE TOP 3 FEET SHALL BE COMPACTED TO 100% OF THE STANDARD PROCTOR DENSITY.
13. AGGREGATE BASE SHALL BE MNDOT 2211 CLASS 5. COMPACTION SHALL BE BY THE QUALITY COMPACTION METHOD.
14. PLANT MIXED BITUMINOUS PAVEMENT SHALL BE CONSTRUCTED IN ACCORDANCE WITH MNDOT 2360 WITH MIX DESIGN AS SHOWN ON THE DETAILS. COMPACTION SHALL BE BY THE ORDINARY COMPACTION METHOD.
15. CONCRETE CURB & GUTTER SHALL BE PERFORMED IN ACCORDANCE WITH MNDOT 2531. CURING SHALL BE BY THE MEMBRANE CURING METHOD. EXPANSION JOINTS EVERY 200 FEET AT ALL FIXED OBJECTS. CONTRACTIONS JOINTS EVERY 10 FEET.
16. CONCRETE WALK SHALL BE PERFORMED IN ACCORDANCE WITH MNDOT 2521. CURING SHALL BE BY THE MEMBRANE CURING METHOD. EXPANSION JOINTS AT ALL FIVES OBJECTS. CONTRACTION JLINTS EVERY 5 FEET.
17. A CITY RIGHT-OF-WAY PERMIT IS REQUIRED TO WORKING WITHIN CITY ROW.

## SITE NOTES

1. ALL PAVING, CONCRETE CURB, GUTTER AND SIDEWALK SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH THE DETAILS SHOWN PER THE DETAIL SHEET(S) AND STATE/LOCAL JURISDICTION REQUIREMENTS.
2. ALL CURB DIMENSIONS SHOWN ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
3. ALL BUILDING DIMENSIONS ARE TO THE OUTSIDE FACE OF WALL UNLESS OTHERWISE NOTED.
4. ALL CURB RADII SHALL BE 5.0' UNLESS OTHERWISE NOTED.
5. SEE SITE ELECTRICAL PLAN FOR SITE LIGHTING.
6. REFER TO ARCHITECTURAL PLANS FOR DETAILED BUILDING AREAS, DIMENSIONS, UNIT COUNTS, STRUCTURED PARKING STALL TOTALS, FLOOR AREA RATIOS, ETC.

## SITE DATA

| | |
|---|---|
| EXISTING SITE ADDRESS: | 15407 & 15409 WAYZATA BLVD, MINNETONKA, MN 55391 |
| HENNEPIN COUNTY PID: | 0411722310020 & 0411722310019 |
| PROPERTY AREA: | 653,147 SQ. FT. / 14.99 +/- AC & 185,769 SQ. FT. / 4.26+/- AC |
| COMBINED PROPERTY AREA: | 838,916 SQ. FT. / 19.25 +/- AC |
| DISTURBED AREA: | 303,729 SQ. FT. / 6.97 +/- AC. |
| EXISTING IMPERVIOUS AREA: | 137,579 SF / 3.16 AC (16.4%) |
| PROPOSED IMPERVIOUS AREA: | 189,348 SF / 4.35 AC (22.6%) |

## OFF-STREET PARKING CALCULATIONS

APARTMENT COMPLEX

| | |
|---|---|
| OUTDOOR STANDARD STALLS = | 83 STALLS |
| OUTDOOR HANDICAP STALLS = | 4 STALLS |
| TOTAL STALLS = | 87 STALLS |

ASSISTED LIVING

| | |
|---|---|
| OUTDOOR STANDARD STALLS = | 28 STALLS |
| OUTDOOR HANDICAP STALLS = | 4 STALLS |
| TOTAL STALLS = | 32 STALLS |

## ACCESSIBLE PARKING

APARTMENT
PROPOSED ABOVE GROUND ACCESSIBLE SURFACE PARKING: 4 STALLS
REQUIRED ACCESSIBLE PARKING: 4 STALLS**
***REQUIRED MINIMUM NUMBER OF ACCESSIBLE SPACES FOR 76 TO 100 STALLS*

ASSISTED LIVING
PROPOSED ABOVE GROUND ACCESSIBLE SURFACE PARKING: 4 STALLS
REQUIRED ACCESSIBLE PARKING: 1 STALLS**
***REQUIRED MINIMUM NUMBER OF ACCESSIBLE SPACES FOR 1 TO 25 STALLS*

## LEGEND

| EXISTING | | PROPOSED |
|---|---|---|
| | CATCH BASIN | |
| | STORM MANHOLE | |
| | FLARED END SECTION | |
| | SANITARY MANHOLE | |
| | HYDRANT | |
| | GATE VALVE | |
| | POST INDICATOR VALVE | |
| | WATER MANHOLE / WELL | |
| | LIGHT POLE | |
| | POWER POLE | |
| | ELECTRIC METER | |
| | GAS METER | |
| | TELEPHONE PEDESTAL | |
| | SIGN | |
| | BENCHMARK | |
| | SOIL BORING | |
| | PARKING STALL COUNT | |
| | ACCESSIBLE PARKING STALL | |
| | STORM SEWER | |
| | DRAINTILE | |
| | SANITARY SEWER | |
| | FORCEMAIN | |
| | WATERMAIN | |
| | SANITARY SEWER SERVICE | |
| | WATER SERVICE | |
| | UNDERGROUND ELECTRIC | |
| | UNDERGROUND FIBER OPTIC | |
| | UNDERGROUND GAS | |
| | UNDERGROUND TELEPHONE | |
| | OVERHEAD UTILITY | |
| | FENCE | |
| | CHAIN LINK FENCE | |
| | CONCRETE CURB | |
| | RETAINING WALL | |
| | CONCRETE | |
| | NO PARKING | |
| | BUILDING | |
| | CONTOUR | |
| | SPOT ELEVATION | |
| | DIRECTION OF FLOW | |
| | TREE LINE | |
| | PARKING SETBACK LINE | |
| | BUILDING SETBACK LINE | |

## PAVEMENT TYPES

- CONCRETE SIDEWALK
- HEAVY DUTY CONCRETE PAVEMENT
- LIGHT DUTY BITUMINOUS PAVEMENT
- HEAVY DUTY BITUMINOUS PAVEMENT

NOTE:
SEE PAVEMENT SECTIONS ON SHEET C8-1 OR C8-2 FOR TYPE AND DEPTH INFORMATION.

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TOLL FREE: 1-800-252-1166

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MINNETONKA, MN

GRECO

607 WASHINGTON AVE. N. SUITE 100
MINNEAPOLIS, MN 55401


LOUCKS
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CIVIL ENGINEERING
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ENVIRONMENTAL
7200 Hemlock Lane, Suite 300
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763.424.5505
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### SUBMITTAL/REVISIONS

10/18/23 C TY SUBM TTAL

### PROFESSIONAL SIGNATURE

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

PJ Disch - PE
License No. 49933
Date -

### QUALITY CONTROL

| | |
|---|---|
| Loucks Project No. | 23055A |
| Project Lead | PJD |
| Drawn By | DDL |
| Checked By | PJD |
| Review Date | 10/18/23 |

### SHEET INDEX



# SITE PLAN
# C2-1

Plotted: 10 /19 / 2023 3:35 PM W:\2023\23055A\CADD DATA\CIVIL_dwg Sheet Files\C2-1 SITE PLAN

NOTE:
EXISTING CONDITIONS INFORMATION SHOWN IS FROM A TOPOGRAPHIC AND BOUNDARY SURVEY PROVIDED BY SUNDE SURVEY COMPANY, DATED DECEMBER 28, 2021

0 30 60
SCALE IN FEET

N

## GRADING & DRAINAGE NOTES

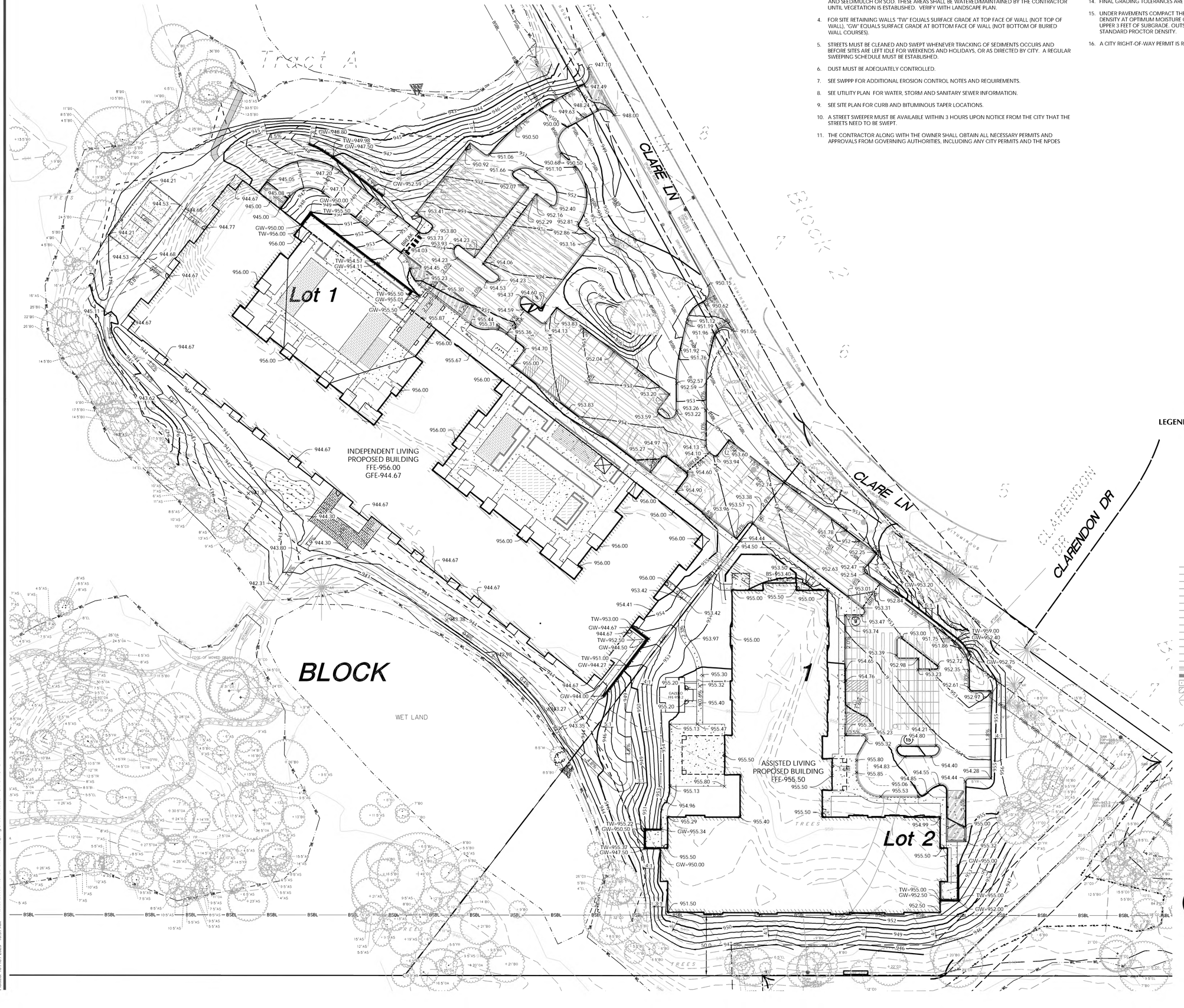
SEE STORMWATER POLLUTION PREVENTION PLAN FOR SOIL STABILIZATION INFORMATION.

EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE ESTABLISHED AROUND THE ENTIRE SITE PERIMETER AND IN ACCORDANCE WITH NPDES PERMIT REQUIREMENTS, BEST MANAGEMENT PRACTICES, CITY REQUIREMENTS AND THE DETAILS SHOWN ON THE CIVIL DETAILS SHEETS OF THESE PLANS.

ALL CURB SPOT ELEVATIONS ARE TO GUTTER LINE-UNLESS NOTED OTHERWISE.

## GRADING, DRAINAGE PLAN NOTES

1. SPOT ELEVATIONS REPRESENT FINISHED SURFACE GRADES, GUTTER/FLOW LINE, FACE OF BUILDING, OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
2. CATCH BASINS AND MANHOLES IN PAVED AREAS SHALL BE SUMPED 0.04 FEET. ALL CATCH BASINS IN GUTTERS SHALL BE SUMPED 0.10 FEET. RIM ELEVATIONS SHOWN ON PLANS DO NOT REFLECT SUMPED ELEVATIONS.
3. ALL DISTURBED UNPAVED AREAS ARE TO RECEIVE MINIMUM OF 4 INCHES OF PREMIUM TOP SOIL AND SEED/MULCH OR SOD. THESE AREAS SHALL BE WATERED/MAINTAINED BY THE CONTRACTOR UNTIL VEGETATION IS ESTABLISHED. VERIFY WITH LANDSCAPE PLAN.
4. FOR SITE RETAINING WALLS "TW" EQUALS SURFACE GRADE AT TOP FACE OF WALL (NOT TOP OF WALL), "GW" EQUALS SURFACE GRADE AT BOTTOM FACE OF WALL (NOT BOTTOM OF BURIED WALL COURSES).
5. STREETS MUST BE CLEANED AND SWEPT WHENEVER TRACKING OF SEDIMENTS OCCURS AND BEFORE SITES ARE LEFT IDLE FOR WEEKENDS AND HOLIDAYS, OR AS DIRECTED BY CITY. A REGULAR SWEEPING SCHEDULE MUST BE ESTABLISHED.
6. DUST MUST BE ADEQUATELY CONTROLLED.
7. SEE SWPPP FOR ADDITIONAL EROSION CONTROL NOTES AND REQUIREMENTS.
8. SEE UTILITY PLAN FOR WATER, STORM AND SANITARY SEWER INFORMATION.
9. SEE SITE PLAN FOR CURB AND BITUMINOUS TAPER LOCATIONS.
10. A STREET SWEEPER MUST BE AVAILABLE WITHIN 3 HOURS UPON NOTICE FROM THE CITY THAT THE STREETS NEED TO BE SWEPT.
11. THE CONTRACTOR ALONG WITH THE OWNER SHALL OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM GOVERNING AUTHORITIES, INCLUDING ANY CITY PERMITS AND THE NPDES PERMIT FROM THE MPCA.
12. THE CONTRACTOR SHALL ADHERE TO ALL REQUIREMENTS OF THE MPCA NPDES PERMIT. THE AREA TO BE DISTURBED SHALL BE MINIMIZED AND TURF SHALL BE ESTABLISHED WITHIN THE TIME REQUIRED.
13. GRADES SHOWN ARE FINISHED GRADES.
14. FINAL GRADING TOLERANCES ARE +/-0.1 FEET TO FINISH GRADES.
15. UNDER PAVEMENTS COMPACT THE UPPER 3 FEET OF SUBGRADE TO 100% STANDARD PROCTOR DENSITY AT OPTIMUM MOISTURE CONTENT AND 95% STANDARD PROCTOR DENSITY BLOW THE UPPER 3 FEET OF SUBGRADE. OUTSIDE PAVEMENT AREAS COMPACT EMBANKMENTS TO 95% STANDARD PROCTOR DENSITY.
16. A CITY RIGHT-OF-WAY PERMIT IS REQUIRED PRIOR TO WORKING WITHIN CITY ROW.




## LEGEND

| EXISTING | | PROPOSED |
|---|---|---|
| | CATCH BASIN | |
| | STORM MANHOLE | |
| | FLARED END SECTION | |
| | SANITARY MANHOLE | |
| | HYDRANT | |
| | GATE VALVE | |
| | POST INDICATOR VALVE | |
| | WATER MANHOLE / WELL | |
| | LIGHT POLE | |
| | POWER POLE | |
| | ELECTRIC METER | |
| | GAS METER | |
| | TELEPHONE PEDESTAL | |
| | SIGN | |
| | BENCHMARK | |
| | SOIL BORING | |
| | PARKING STALL COUNT | |
| | ACCESSIBLE PARKING STALL | |
| | STORM SEWER | |
| DT | DRAINTILE | DT |
| | SANITARY SEWER | |
| FM | FORCEMAIN | FM |
| | WATERMAIN | |
| | SANITARY SEWER SERVICE | |
| | WATER SERVICE | |
| ELE | UNDERGROUND ELECTRIC | ELE |
| FO | UNDERGROUND FIBER OPTIC | FO |
| GAS | UNDERGROUND GAS | GAS |
| TEL | UNDERGROUND TELEPHONE | TEL |
| OH | OVERHEAD UTILITY | OH |
| | FENCE | |
| | CHAIN LINK FENCE | |
| | CONCRETE CURB | |
| | RETAINING WALL | |
| | CONCRETE | |
| | NO PARKING | |
| | BUILDING | |
| | CONTOUR | |
| | SPOT ELEVATION | |
| | DIRECTION OF FLOW | |
| | TREE LINE | |
| | PARKING SETBACK LINE | |
| | BUILDING SETBACK LINE | |

CALL BEFORE YOU DIG!
Gopher State One Call
TWIN CITY AREA: 651-454-0002
TOLL FREE: 1-800-252-1166

**WARNING:**

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND / OR RELOCATION OF LINES.

THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL AT 651-454-0002 AT LEAST 48 HOURS IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

PJ Disch - PE
License No. 49933
Date -

### QUALITY CONTROL

| | |
|---|---|
| Loucks Project No. | 23055A |
| Project Lead | PJD |
| Drawn By | DDL |
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| Review Date | 10/18/23 |

### SHEET INDEX



# GRADING PLAN
# C3-1

Plotted: 10/18/2023 10:59 AM W:\2023\23055A\CADD DATA\CIVIL\..dwg Sheet Files\C3-1 GRADING PLAN

NOTE:
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0 30 60
SCALE IN FEET

N

SILT FENCE-TYP (SEE DETAIL)

ROCK CONSTRUCTION ENTRANCE (SEE DETAIL)

BIOROLL-TYP (SEE DETAIL)

INLET PROTECTION-TYP (SEE DETAIL)

INDEPENDENT LIVING
PROPOSED BUILDING
FFE-956.00
GFE-944.67

ASSISTED LIVING
PROPOSED BUILDING
FFE-955.50

WET LAND

CLARE LN

CLARENDON DR

BITUMINOUS

CONCRETE CURB

OWNER, LD

GAZEBO
TFE-959.2

504.13

770.01

## SWPPP LEGEND

- SF — SILT FENCE
- BIO ROLLS
- INLET PROTECTION

NOTE: EROSION CONTROL BLANKET REQUIRED ON ANY SLOPES OVER 4:1

## LEGEND

| EXISTING | | PROPOSED |
|---|---|---|
| | CATCH BASIN | |
| | STORM MANHOLE | |
| | FLARED END SECTION | |
| | SANITARY MANHOLE | |
| | HYDRANT | |
| | GATE VALVE | |
| | POST INDICATOR VALVE | GV |
| | WATER MANHOLE / WELL | |
| | LIGHT POLE | |
| | POWER POLE | |
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| | TELEPHONE PEDESTAL | |
| | SIGN | |
| | BENCHMARK | |
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| | DRAINTILE | |
| | SANITARY SEWER | |
| | FORCEMAIN | |
| | WATERMAIN | |
| | SANITARY SEWER SERVICE | |
| | WATER SERVICE | |
| | UNDERGROUND ELECTRIC | |
| | UNDERGROUND FIBER OPTIC | |
| | UNDERGROUND GAS | |
| | UNDERGROUND TELEPHONE | |
| | OVERHEAD UTILITY | |
| | FENCE | |
| | CHAIN LINK FENCE | |
| | CONCRETE CURB | |
| | RETAINING WALL | |
| | CONCRETE | |
| | NO PARKING | |
| | BUILDING | |
| | CONTOUR | |
| | SPOT ELEVATION | |
| | DIRECTION OF FLOW | |
| | TREE LINE | |
| | PARKING SETBACK LINE | |
| | BUILDING SETBACK LINE | |

NOTE:
SEE PAVEMENT SECTIONS ON SHEET C8-1 OR C8-2 FOR TYPE AND DEPTH INFORMATION.

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| Checked By | PJD |
| Review Date | 10/18/23 |

### SHEET INDEX



SWPPP
C3-2


Plotted: 10 /18 / 2023 10:47 AM W:\2023\23055A\CADD DATA\CIVIL\..dwg Sheet File\C3-2 SWPPP PLAN

## SWPPP NOTES

1. THE NATURE OF THIS PROJECT WILL CONSIST OF CONSTRUCTING TWO PROPOSED BUILDINGS, PARKING LOT, SURFACE PAVEMENTS, AND UTILITIES.

2. THE INTENDED SEQUENCING OF MAJOR CONSTRUCTION ACTIVITIES ARE AS FOLLOWS:

1. INSTALL VEHICLE TRACKING BMP (SPRING 2022)
2. INSTALL INLET PROTECTION (SPRING 2022)
3. INSTALL SILT FENCE AROUND SITE (SPRING 2022)
4. CLEAR AND GRUB SITE (SPRING 2022)
5. STRIP AND STOCKPILE TOPSOIL (SPRING 2022)
6. REMOVE PAVEMENTS AND UTILITIES (SPRING 2022)
7. ROUGH GRADE SITE (SPRING 2022)
8. IMPORT CLEAN FILL FOR REPLACEMENT AND BALANCE (SPRING 2022)
9. INSTALL UTILITIES (SPRING 2022)
10. INSTALL BUILDING FOUNDATIONS (SPRING 2022)
11. INSTALL CURB AND GUTTER (SUMMER 2022)
12. INSTALL PAVEMENTS AND WALKS (SUMMER 2022)
13. FINAL GRADE SITE (SUMMER 2022)
14. REMOVE ACCUMULATED SEDIMENT FROM STORMWATER SYSTEMS (FALL 2022)
15. SEED AND MULCH (FALL 2022)
16. WHEN ALL CONSTRUCTION ACTIVITY IS COMPLETE AND THE SITE IS STABILIZED, REMOVE SILT FENCE, INLET PROTECTION, AND RESEED ANY AREAS DISTURBED BY THE REMOVAL.

3. SITE DATA:

| | |
|---|---|
| PROPERTY AREA / DISTURBED AREA: | 19.25 AC / 6.97 AC |
| PRE-CONSTRUCTION IMPERVIOUS AREA: | 3.16 AC |
| POST-CONSTRUCTION IMPERVIOUS AREA: | 4.35 AC |

GENERAL SOIL TYPE: SEE PRELIMINARY GEOTECHNICAL SOIL BORINGS BY HAUGO GEOTTECHICAL SERVICES DATED 09/11/23

HYDROLOGY INFORMATION: SEE HYDROLOGY REPORT PREPARED BY LOUCKS DATED OCTOBER 2, 2023

4. EROSION AND SEDIMENT CONTROLS WERE DESIGNED TO EFFECTIVELY CONTROL STORMWATER RUNOFF WITHIN THE PROJECT AREAS. EROSION AND SEDIMENT CONTROL HAVE BEEN PROPOSED TO MINIMIZE CHANNEL EROSION AND SCOUR IN THE IMMEDIATE VICINITY OF DISCHARGE POINTS. FACTORS THAT WERE CONSIDERED INCLUDE PROPOSED IMPERVIOUS AREAS, SLOPE OF IMPERVIOUS SURFACES, STORMWATER INFRASTRUCTURE DISCHARGE POINTS, AND ANNUAL AVERAGE PRECIPITATION DATA FOR THE PROJECT AREA.

5. HENNEPIN COUNTY RECEIVES AN AVERAGE OF 32 INCHES OF PRECIPITATION PER YEAR. THE FOLLOWING HENNEPIN COUNTY 24-HOUR STORM EVENTS ARE BASED ON ATLAS 14 RAINFALL DATA:

| | |
|---|---|
| 2-YR | 2.86 INCHES |
| 10-YR | 4.26 INCHES |
| 100-YR | 7.32 INCHES |

6. SEE "EXHIBIT:PROPOSED DRAINAGE AREAS" FOR SITE MAP WITH DRAINAGE AREA BOUNDARIES.

7. THE LOCATION OF AREAS NOT TO BE DISTURBED MUST BE IDENTIFIED WITH FLAGS, STAKES, SIGNS, SILT FENCE, ETC. BEFORE CONSTRUCTION BEGINS.

8. CONTRACTOR SHALL INSTALL RAIN GAUGE ON SITE.

9. NO DEWATERING IS EXPECTED TO OCCUR ON SITE. NO GROUNDWATER EXPECTED TO BE ENCOUNTERED DURING CONSTRUCTION. IF DEWATERING IS REQUIRED, REFER TO CITY REGULATIONS.

10. CONTAMINATION EXPECTED TO BE ENCOUNTERED DURING EXCAVATION.

11. ALL DISTURBED GROUND LEFT INACTIVE FOR SEVEN (7) OR MORE DAYS SHALL BE STABILIZED BY SEEDING OR SODDING (ONLY AVAILABLE PRIOR TO SEPTEMBER 15) OR BY MULCHING OR COVERING OR OTHER EQUIVALENT CONTROL MEASURE.

12. ON SLOPES 3:1 OR GREATER MAINTAIN SHEET FLOW AND MINIMIZE RILLS AND/OR GULLIES, SLOPE LENGTHS CAN NOT BE GREATER THAN 75 FEET.

DENOTES SLOPES GREATER THAN 3:1. ALL 3:1 SLOPES TO BE STABILIZED WITH EROSION CONTROL BLANKET

13. ALL STORM DRAINS AND INLETS MUST BE PROTECTED UNTIL ALL SOURCES OF POTENTIAL DISCHARGE ARE STABILIZED.

14. SOIL COMPACTION SHALL BE MINIMIZED DURING CONSTRUCTION.

15. TEMPORARY SOIL STOCKPILES MUST HAVE EFFECTIVE SEDIMENT CONTROL AND CAN NOT BE PLACED IN SURFACE WATERS OR STORM WATER CONVEYANCE SYSTEMS. TEMPORARY STOCKPILES WITHOUT SIGNIFICANT AMOUNT OF SILT, CLAY, OR ORGANIC COMPOUNDS ARE EXEPMT EX: CLEAN AGGREGATE STOCK PILES, DEMOLITION CONCRETE STOCKPILES, SAND STOCKPILES.

16. SEDIMENT CONTROL PRACTICES SHALL BE INSTALLED ON ALL DOWNGRADIENT PERIMETERS AND UPGRADIENT OF ANY BUFFER ZONES.

17. SEDIMENT LADEN WATER MUST BE DISCHARGED TO A SEDIMENTATION BASIN WHENEVER POSSIBLE. IF NOT POSSIBLE, IT MUST BE TREATED WITH THE APPROPRIATE BMP'S.

18. SOLID WASTE MUST BE DISPOSED OF PROPERLY AND MUST COMPLY WITH MPCA DISPOSAL REQUIREMENTS.

19. NO VEHICLE WASHING ALLOWED ON SITE.

20. NO ENGINE DEGREASING IS ALLOWED ON SITE.

21. THE OWNER IS RESPONSIBLE FOR COMPLIANCE WITH ALL TERMS AND CONDITIONS OF THE PERMIT. THE OPERATOR IS RESPONSIBLE FOR COMPLIANCE WITH SECTIONS 3, 4, 6-22, 24 AND APPLICABLE REQUIREMENTS FOR CONSTRUCTION ACTIVITY IN SECTION 23.

22. TERMINATION OF COVERAGE-PERMITTEE(S) WISHING TO TERMINATE COVERAGE MUST SUBMIT A NOTICE OF TERMINATION (NOT) TO THE MPCA. ALL PERMITTEE(S) MUST SUBMIT A NOT WITHIN 30 DAYS AFTER THE FOLLOWING CONDITIONS HAVE BEEN MET:

A. PERMIT TERMINATION CONDITIONS, PER NPDES PERMIT SECTION 13.1 HAVE BEEN ACHIEVED ON ALL PORTIONS OF THE SITE FOR WHICH THE PERMITTEE IS RESPONSIBLE.

A.A. PERMANENT UNIFORM PERENNIAL VEGETATIVE COVER MUST BE ESTABLISHED AT 70% DENSITY OF ITS EXPECTED FINAL GROWTH.

A.B. THE PERMANENT STORMWATER TREATMENT SYSTEM IS CONSTRUCTED, MEETS ALL REQUIREMENTS, AND IS OPERATING AS DESIGNED.

A.C. ALL TEMPORARY SYNTHETIC EROSION PREVENTION AND SEDIMENT CONTROL BMPS MUST BE REMOVED.

A.D. CLEAN OUT SEDIMENT FROM CONVEYANCE SYSTEMS AND PERMANENT STORMWATER TREATMENT SYSTEMS (RETURN TO DESIGN CAPACITY).

23. INSPECTIONS

A. INITIAL INSPECTION FOLLOWING SILT FENCE INSTALLATION BY CITY REPRESENTATIVE IS REQUIRED.

B. EXPOSED SOIL AREAS: ONCE EVERY 7 DAYS AND WITHIN 24 HOURS FOLLOWING A 0.5" OVER 24 HOUR RAIN EVENT.

C. STABILIZED AREAS: ONCE EVERY 30 DAYS

D. FROZEN GROUND: AS SOON AS RUNOFF OCCURS OR PRIOR TO RESUMING CONSTRUCTION.

E. INSPECTION AND MAINTENANCE RECORDS MUST BE RETAINED FOR 3 YEARS AFTER FILING OF THE NOTICE OF TERMINATION AND MUST INCLUDE: DATE AND TIME OF ACTION, NAME OF PERSON(S) CONDUCTING WORK, FINDING OF INSPECTIONS AND RECOMMENDATIONS FOR CORRECTIVE ACTION, DATE AND AMOUNT OF RAINFALL EVENTS GREATER THAN 0.5 INCHES IN A 24 HOUR PERIOD.

F. OBSERVE ANY DISCHARGE OCCURRING ONSITE AND DOCUMENT CORRECTIVE ACTIONS TAKEN. DISCHARGE SHOULD BE DESCRIBED AND PHOTOGRAPHED.

24. MINIMUM MAINTENANCE

A. ALL NONFUNCTIONAL BMPS MUST BE REPAIRED, REPLACED, OR SUPPLEMENTED WITH FUNCTIONAL BMPS BY THE END OF THE NEXT BUSINESS DAY AFTER DISCOVERY OR AS SOON AS FIELD CONDITIONS ALLOW.

B. REPAIR, REPLACE, OR SUPPLEMENT ALL PERIMETER CONTROL DEVICES WHEN THEY BECOME NONFUNCTIONAL OR THE SEDIMENT REACHES ½ THE HEIGHT OF THE DEVICE.

C. SEDIMENT BASINS DRAINED AND SEDIMENT REMOVED WHEN REACHES 1/2 STORAGE VOLUME.

D. SEDIMENT REMOVED FROM SURFACE WATERS WITHIN (7)SEVEN CALENDAR DAYS OF DISCOVERY.

E. CONSTRUCTION SITE EXITS INSPECTED, TRACKED SEDIMENT REMOVED WITHIN (1)ONE CALENDAR DAY.

F. PROVIDE COPIES OF EROSION INSPECTION RESULTS TO CITY ENGINEER FOR ALL EVENTS GREATER THAN ½" IN 24 HOURS.

25. THE SWPPP, INCLUDING ALL CHANGES TO IT, AND INSPECTIONS AND MAINTENANCE RECORDS MUST BE KEPT AT THE SITE DURING CONSTRUCTION ACTIVITY BY THE PERMITTEE(S) WHO HAVE OPERATIONAL CONTROL OF THE SITE.

26. OWNER MUST KEEP RECORDS OF ALL PERMITS REQUIRED FOR THE PROJECT, THE SWPPP, ALL INSPECTIONS AND MAINTENANCE, PERMANENT OPERATION AND MAINTENANCE AGREEMENTS, AND REQUIRED CALCULATIONS FOR TEMPORARY AND PERMANENT STORM WATER MANAGEMENT SYSTEMS. THESE RECORDS MUST BE RETAINED FOR THREE YEARS AFTER FILING NPDES NOTICE OF TERMINATION.

27. SWPPP MUST BE AMENDED WHEN:

A. THERE IS A CHANGE IN DESIGN, OPERATION, MAINTENANCE, WEATHER OR SEASONAL CONDITIONS THAT HAS A SIGNIFICANT EFFECT ON DISCHARGE

B. INSPECTIONS INDICATE THAT THE SWPPP IS NOT EFFECTIVE AND DISCHARGE IS EXCEEDING WATER QUALITY STANDARDS.

C. THE BMP'S IN THE SWPPP ARE NOT CONTROLLING POLLUTANTS IN DISCHARGES OR IS NOT CONSISTENT WITH THE TERMS AND CONDITIONS OF THE PERMIT.

28. CONCRETE WASHOUT AREA

A. CONCRETE WASH-OUT SITES NOT ALLOWED ON SITE AND MUST BE CONTAINED ON TRUCKS.

B. ALL SPILLS SHALL BE CLEANED UP IMMEDIATELY.

29. IN THE EVENT OF ENCOUNTERING A WELL OR SPRING DURING CONSTRUCTION CONTRACTOR TO CEASE CONSTRUCTION ACTIVITY AND NOTIFY ENGINEER.

30. PIPE OULTETS MUST BE PROVIDED WITH TEMPORARY OR PERMANENT ENERGY DISSIPATION WITHIN 24 HOURS AFTER CONNECTION TO A SURFACE WATER.

31. FINAL STABILIZATION

FINAL STABILIZATION REQUIRES THAT ALL SOIL DISTURBING ACVTIVITIES HAVE BEEN COMPLETED AND THAT DISTURBED AREAS ARE STABILIZED BY A UNIFORM PERENNIAL VEGETATIVE COVER WITH 70% OF THE EXPECTED FINAL DENSITY, AND THAT ALL PERMANENT PAVEMENTS HAVE BEEN INSTALLED. ALL TEMPORARY BMP'S SHALL BE REMOVED, DITCHES STABILIZED, AND SEDIMENT SHALL BE REMOVED FROM PERMANENT CONVEYANCES AND SEDIMENTATION BASINS IN ORDER TO RETURN THE POND TO DESIGN CAPACITY.

32. RESPONSIBILITIES

A. THE OWNER MUST IDENTIFY A PERSON WHO WILL OVERSEE THE SWPPP IMPLEMENTATION AND THE PERSON RESPONSIBLE FOR INSPECTION AND MAINTENANCE:

CONTACT:

COMPANY:

PHONE:

B. THE OWNER MUST IDENTIFY THE A PERSON WHO WILL BE RESPONSIBLE FOR LONG TERM OPERATIONS AND MAINTENANCE OF THE PERMANENT STORMWATER MANAGEMENT SYSTEM:

CONTACT:

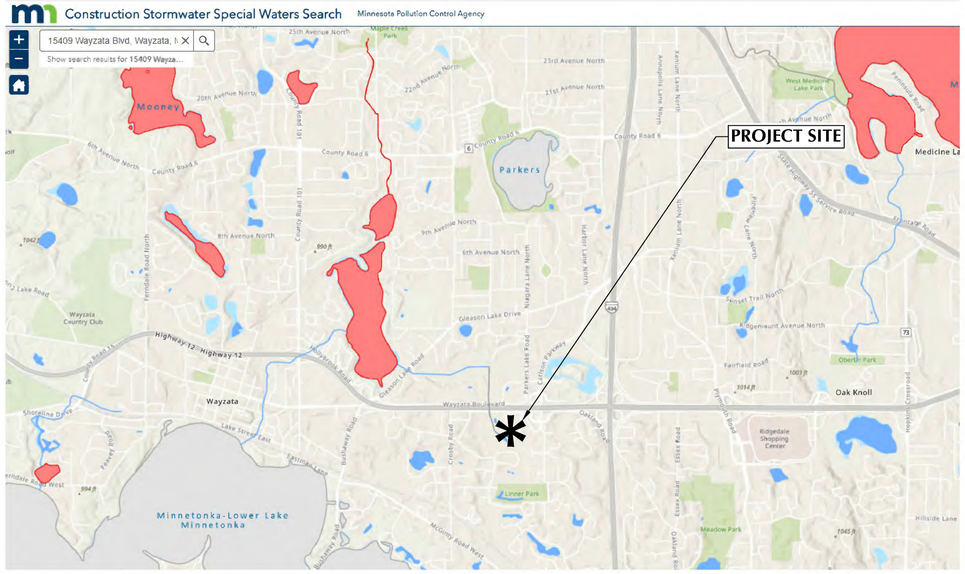
COMPANY:

PHONE:

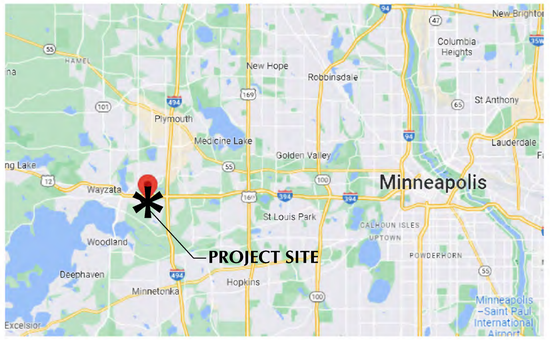
33. THE WATERSHED DISTRICT OR THE CITY MAY HAVE REQUIREMENTS FOR INSPECTIONS OR AS-BUILT DRAWINGS VERIFYING PROPER CONSTRUCTION OF THE BMPS.

34. EROSION CONTROL DEVICES CANNOT BE REMOVED UNTIL THE WATERSHED DISTRICT HAS DETERMINED THE SITE HAS BEEN PERMANENTLY RESTABALIZED AND SHALL BE REMOVED WITHIN 30 DAYS THEREAFTER.

## CONSTRUCTION STORMWATER SPECIAL WATERS SEARCH MAP

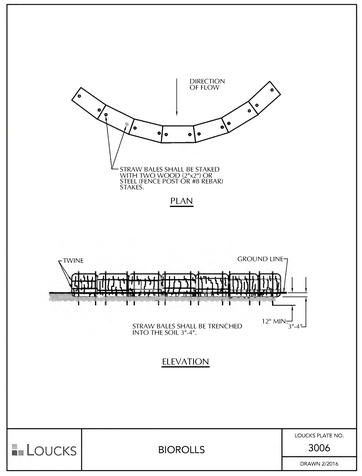



## SITE VICINITY MAP

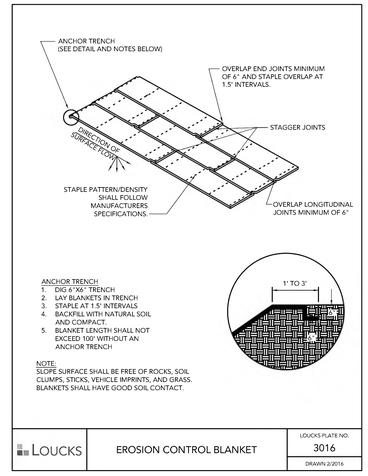



## ESTIMATED QUANTITIES

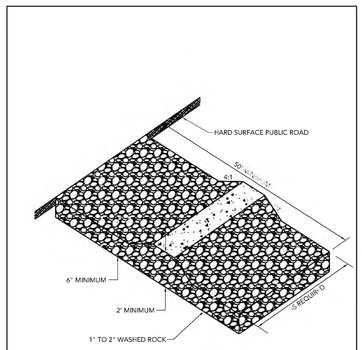
| DESCRIPTION | UNIT | QUANTITY |
|---|---|---|
| TEMPORARY ROCK CONSTRUCTION ENTRANCE | EA | 1 |
| PREFABRICATED CONCRETE WASHOUT | EA | NA |
| SILT FENCE (STANDARD) | LF | 2,340 |
| EROSION CONTROL BLANKET | SY | GEN. CONT. |
| INLET PROTECTION | EA | 14 |
| BIO-ROLL | LF | 60 |



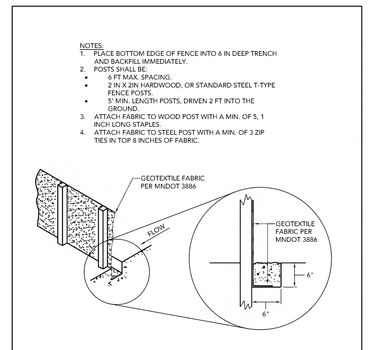

BIOROLLS | LOUCKS PLATE NO. 3006 | DRAWN 2/2016




EROSION CONTROL BLANKET | LOUCKS PLATE NO. 3016 | DRAWN 2/2016




ROCK ENTRANCE TO CONSTRUCTION SITE | LOUCKS PLATE NO. 3004 | DRAWN 2/2016




SILT FENCE | LOUCKS PLATE NO. 3000 | DRAWN 2/2016

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763.424.5505
www.loucksinc.com




SUBMITTAL/REVISIONS

10/18/23 C TY SUBM TTAL

PROFESSIONAL SIGNATURE

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

PJ Dach - PE
License No. 49933
Date -

QUALITY CONTROL

| | |
|---|---|
| Loucks Project No. | 23055A |
| Project Lead | PJD |
| Drawn By | DDL |
| Checked By | PJD |
| Review Date | 10/18/23 |

SHEET INDEX



SWPPP NOTES
C3-3


Plotted: 10/18/2023 10:48 AM W:\2023\23055A\CADD DATA\CIVIL dwg Sheet Files\C3-3 SWPPP NOTES

NOTE:
EXISTING CONDITIONS INFORMATION SHOWN IS FROM A TOPOGRAPHIC AND BOUNDARY SURVEY PROVIDED BY SUNDE SURVEY COMPANY, DATED DECEMBER 28, 2021

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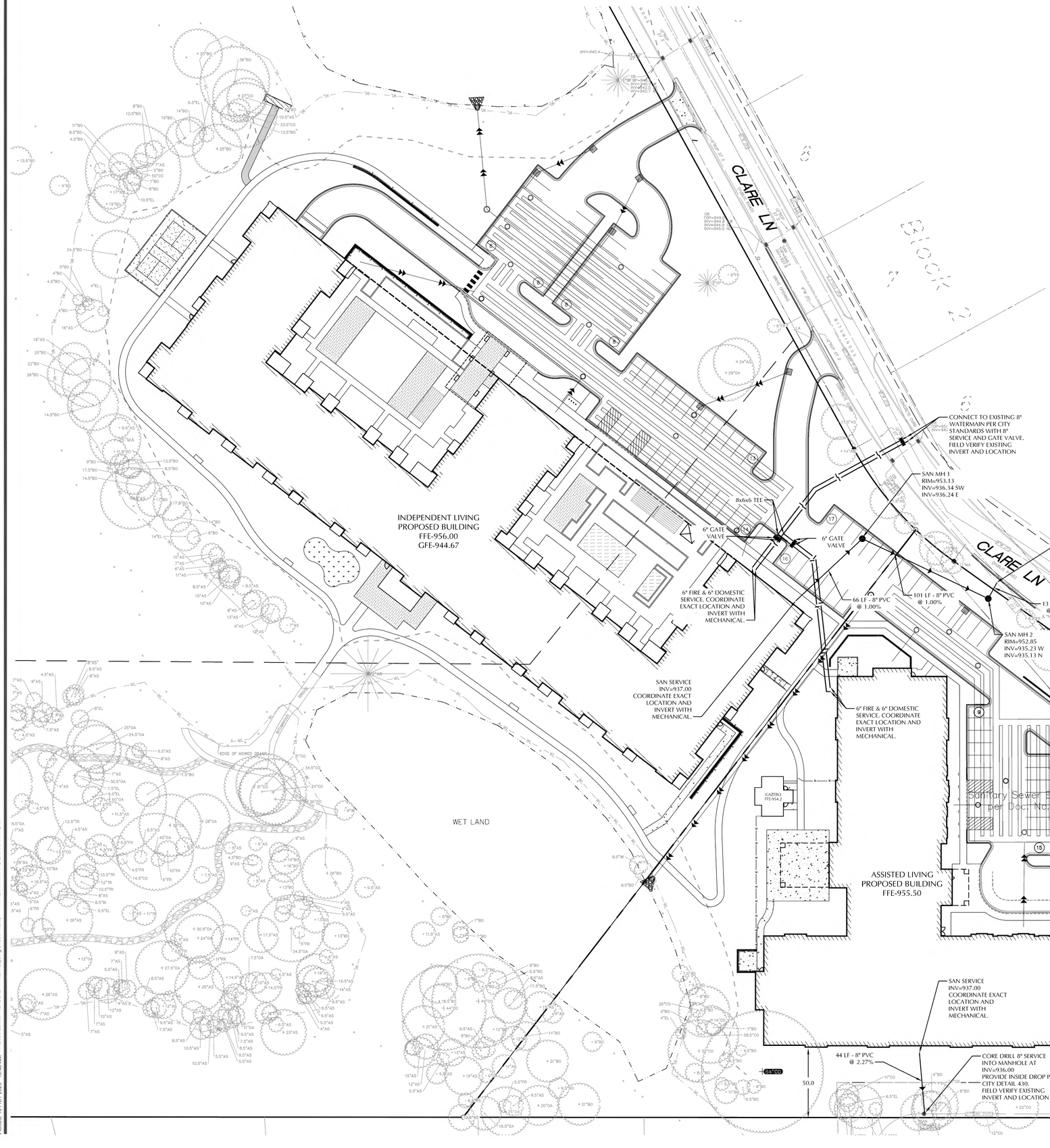
SCALE IN FEET




NOTE:
SEE PAVEMENT SECTIONS ON SHEET C8-1 OR C8-2 FOR TYPE AND DEPTH INFORMATION.

CALL BEFORE YOU DIG!
Gopher State One Call
TWIN CITY AREA: 651-454-0002
TOLL FREE: 1-800-252-1166

**WARNING:**

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND / OR RELOCATION OF LINES.

THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL AT 651-454-0002 AT LEAST 48 HOURS IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

## UTILITY NOTES

1. ALL SANITARY SEWER, STORM SEWER AND WATERMAIN UTILITIES SHALL BE FURNISHED AND INSTALLED PER THE REQUIREMENTS OF THE SPECIFICATIONS,THE MINNESOTA PLUMBING CODE, THE LOCAL GOVERNING UNIT , AND THE STANDARD UTILITIES SPECIFICATION OF THE CITY ENGINEERS ASSOCIATION OF MINNESOTA (CEAM), 2013 EDITION.
2. ALL UTILITY PIPE BEDDING SHALL BE COMPACTED SAND OR FINE GRANULAR MATERIAL. ALL COMPACTION SHALL BE PERFORMED PER THE REQUIREMENTS OF THE CEAM SPECIFICATION AND THE GEOTECHNICAL REPORT.
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4. ALL STORM SEWER , SANITARY SEWER AND WATER SERVICES SHALL TERMINATE 5' FROM THE BUILDING FACE UNLESS OTHERWISE NOTED.
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7. ALL FIRE HYDRANTS SHALL BE LOCATED 5 FEET BEHIND BACK OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
8. PROPOSED PIPE MATERIALS:

| | | |
|---|---|---|
| WATERMAIN | CL 52 DIP | 6" TO 8" DIAMETER |
| SANITARY SEWER | PVC SDR 35 & SCH 40 | 6" TO 8" DIAMETER |
| STORM SEWER | DUAL WALL HDPE | 12" TO 15" DIAMETER |

9. ALL PORTIONS OF THE STORM SEWER SYSTEM, INCLUDING CATCH BASINS, LOCATED WITHIN 10 FEET OF THE BUILDING OR WATER SERVICE LINE MUST BE TESTED ACCORDANCE WITH MINNESOTA RULES, PART 4715.2820
10. ALL JOINTS AND CONNECTIONS IN THE STORM SEWER SYSTEM SHALL BE GASTIGHT OR WATERTIGHT (SEE MINNESOTA RULES, PART 4715.0700). APPROVED RESILIENT RUBBER JOINTS MUST BE USED TO MAKE WATERTIGHT CONNECTIONS TO MANHOLES, CATCHBASINS, AND OTHER STRUCTURES.
11. HIGH-DENSITY POLYETHYLENE (HDPE) STORM DRAINS MUST COMPLY WITH MINNESOTA RULES, PART 4715.0540:
    a. PIPES 4-INCH TO 10-INCH IN SIZE MUST COMPLY WITH AASHTO M252.
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    c. ALL FITTINGS MUST COMPLY WITH ASTM D3212.
    d. WATER-TIGHT JOINTS MUST BE USED AT ALL CONNECTIONS INCLUDING STRUCTURES.
12. CONTRACTOR AND MANHOLE FABRICATOR SHALL SUMP (LOWER) ALL STORM SEWER CATCH BASIN CASTINGS WITHIN PAVED AREAS 0.16 FEET OR 2-INCHES BELOW THE RIM ELEVATION DEPICTED ON THE UTILITY PLAN.
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16. PIPE LENGTHS SHOWN ON THE PLAN INCLUDE THE APRON SECTION.
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18. TRENCH COMPACTION SHALL BE 95% STANDARD PROCTOR DENSITY IN THE AREA FROM THE PIPE ZONE TO WITHIN 3 FEET OF FINISHED GRADE AND 100% IN FINAL 3 FEET OF THE BACKFILL TO FINISH GRADE.

# MINNETONKA SENIOR APARTMENTS

MINNETONKA, MN


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ENVIRONMENTAL
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Maple Grove, MN 55369
763.424.5505
www.loucksinc.com


### CADD QUALIFICATION



### SUBMITTAL/REVISIONS

| | |
|---|---|
| 10/18/23 | C TY SUBM TTAL |

### PROFESSIONAL SIGNATURE

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

PJ Disch - PE
License No. 49933
Date -

### QUALITY CONTROL

| | |
|---|---|
| Loucks Project No. | 23055A |
| Project Lead | PJD |
| Drawn By | DDL |
| Checked By | PJD |
| Review Date | 10/18/23 |

### SHEET INDEX



# SANITARY SWER AND WATERMAIN PLAN

# C4-1

Plotted: 10 /18 / 2023 10:48 AM W:\2023\23055A\CADD DATA\CIVIL\ dwg Sheet Files\C4-1 WATER MAIN AND SANITARY PLAN

NOTE:
EXISTING CONDITIONS INFORMATION SHOWN IS FROM A TOPOGRAPHIC AND BOUNDARY SURVEY PROVIDED BY SUNDE SURVEY COMPANY, DATED DECEMBER 28, 2021

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SCALE IN FEET

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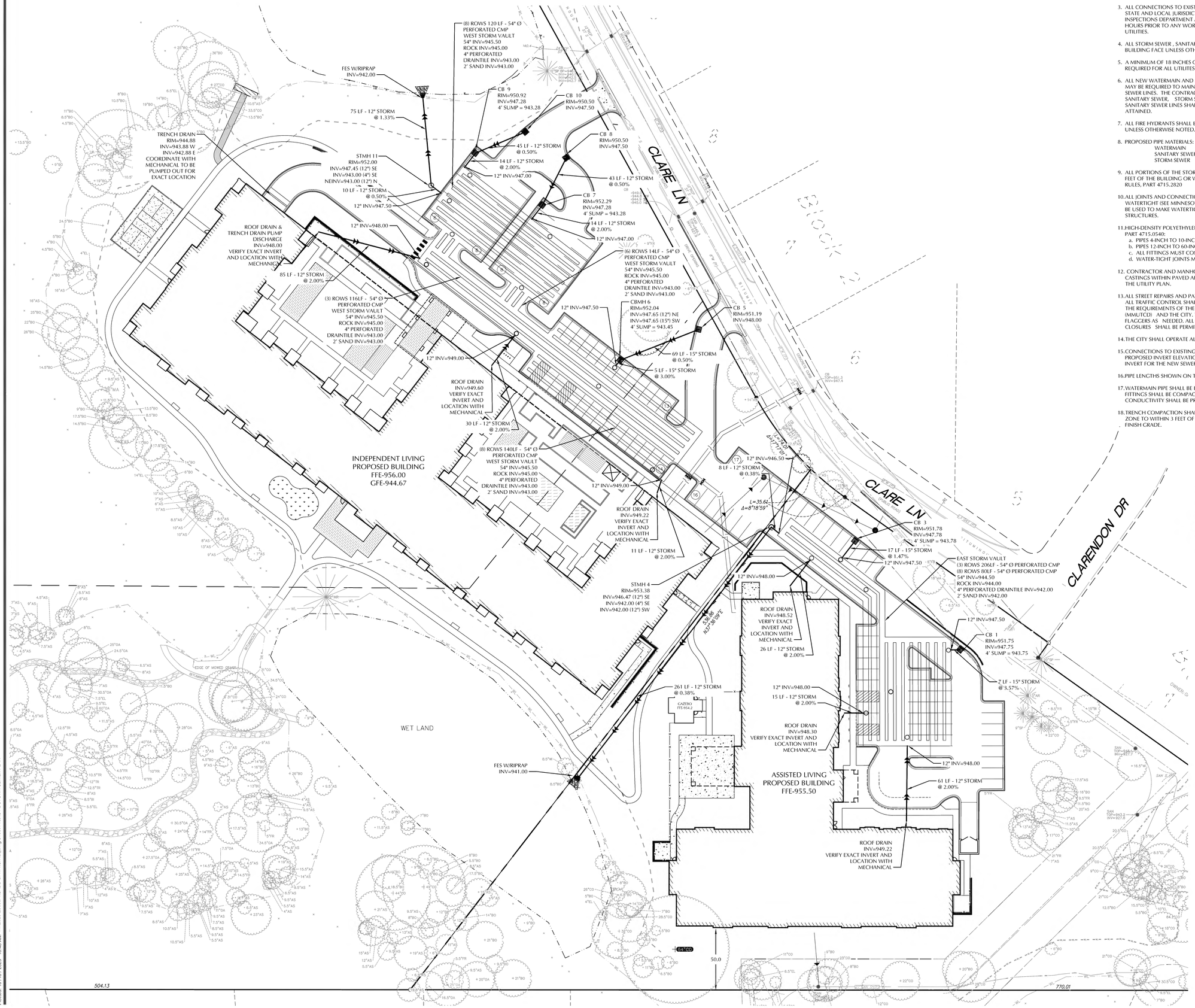


NOTE:
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### CADD QUALIFICATION


### SUBMITTAL/REVISIONS
10/18/23 C TY SUBM TTAL

### PROFESSIONAL SIGNATURE
I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

PJ Disch - PE
License No. 49933
Date -

### QUALITY CONTROL

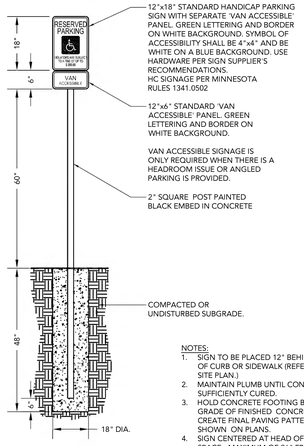
| | |
|---|---|
| Loucks Project No. | 23055A |
| Project Lead | PJD |
| Drawn By | DDL |
| Checked By | PJD |
| Review Date | 10/18/23 |

### SHEET INDEX



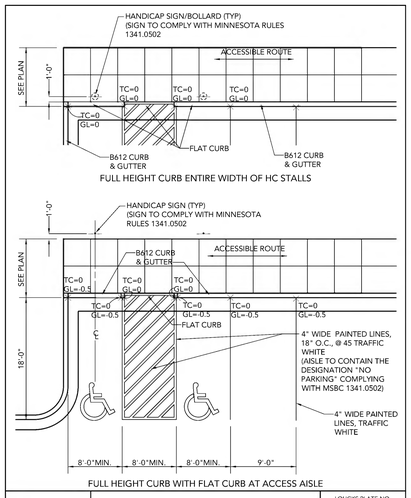
# STORM SEWER PLAN
# C4-2

Plotted: 10/18/2023 10:48 AM W:\2023\23055A\CADD DATA\CIVIL_dwg Sheet Files\C4-2 STORM SEWER PLAN

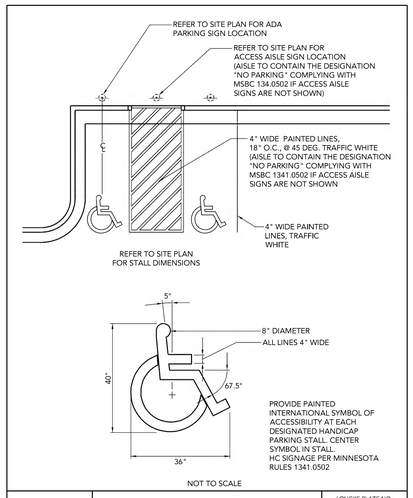



NOTES:
1. SIGN TO BE PLACED 12" BEHIND BACK OF CURB OR SIDEWALK (REFER TO SITE PLAN.)
2. MAINTAIN PLUMB UNTIL CONCRETE IS SUFFICIENTLY CURED.
3. HOLD CONCRETE FOOTING BELOW GRADE OF FINISHED CONCRETE TO CREATE FINAL PAVING PATTERN AS SHOWN ON PLANS.
4. SIGN CENTERED AT HEAD OF PARKING SPACE - MAXIMUM OF 96" FROM HEAD OF PARKING SPACE.

LOUCKS | TYPICAL ADA PARKING SIGN / BOLLARD COMBO | LOUCKS PLATE NO. 2038A | DRAWN 03/2017

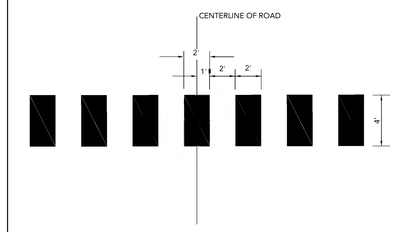



LOUCKS | TYPICAL ADA PARKING | LOUCKS PLATE NO. 2036 | DRAWN 12/2016



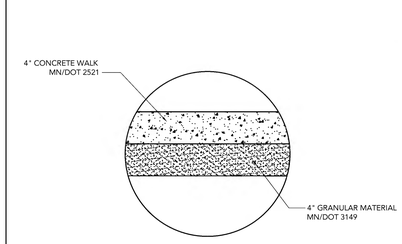

NOT TO SCALE

LOUCKS | TYPICAL ADA PARKING STALL STRIPING | LOUCKS PLATE NO. 2037 | DRAWN 03/2017




CROSSWALK BAR TO MEET CURRENT MMUTCD STANDARDS

LOUCKS | CROSSWALK BAR | LOUCKS PLATE NO. 2040 | DRAWN 12/2016




LOUCKS | CONCRETE SIDEWALK SECTION | LOUCKS PLATE NO. 2034 | DRAWN 12/2016




NOTES:
1. "NO PARKING FIRE LANE", R7-22 OR APPROVED EQUAL. SIGN MUST BE A MINIMUM OF 12" X 18", ALUMINUM PLATE, .063 MIN. THICKNESS, HIGH INTENSITY SHEETING, INSTALLED AT A HEIGHT 5' ABOVE GROUND, WITH RED LETTERING ON WHITE BACKGROUND (STANDARD).
2. THE SIGN SUPPORTS WILL BE A U POST.
3. THE SUPPORTING POSTS SHALL BE SET BACK A MINIMUM OF 12" BUT NOT MORE THAN 36" FROM THE CURB ON BOTH SIDES OF THE FIRE LANE.
4. ALL SIGNS SHALL FACE THE DIRECTION OF TRAVEL AND BE INSTALLED ACCORDING TO THE LOCATIONS IDENTIFIED BY THE CITY ON THE APPROVED SITE PLAN FOR THE DEVELOPMENT.

LOUCKS | FIRE LANE SIGN | LOUCKS PLATE NO. 2026 | DRAWN 2/2016




| CURB TYPE | "A" |
|---|---|
| B612 | 12" |
| B618 | 18" |
| B624 | 24" |

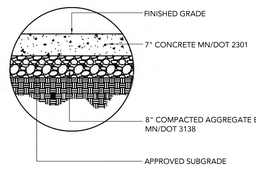
SPECIFICATION NOTES:
1. UPON COMPLETION, CURBING SHOULD BE SPRAYED WITH A MEMBRANE CURING COMPOUND PER MNDOT 3754.
2. EXPANSION JOINTS AT MAX. SPACING OF 200'.
3. CONSTRUCT IN ACCORDANCE WITH MNDOT 2531.

LOUCKS | B6 STYLE CONCRETE CURB AND GUTTER | LOUCKS PLATE NO. 2009 | DRAWN 2/2016



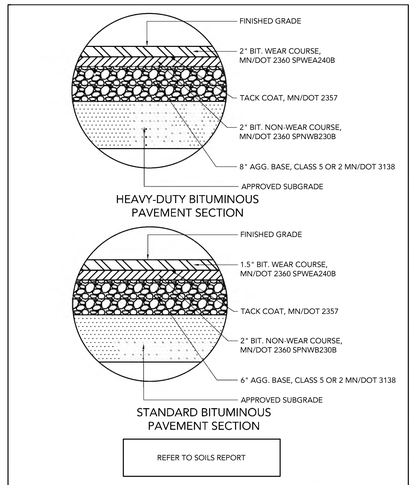

SPECIFICATION NOTES:
1. UPON COMPLETION, CURBING SHOULD BE SPRAYED WITH A MEMBRANE CURING COMPOUND PER MNDOT 3754.
2. EXPANSION JOINTS AT MAX. SPACING OF 200'.
3. CONSTRUCT IN ACCORDANCE WITH MNDOT 2531.
4. THE GAP BETWEEN THE SIDEWALK AND CONCRETE CURB (B612 OR FLUSH CURB) TO BE A MAXIMUM OF ½" WITH TYPICAL PRE-MOLDED EXPANSION JOINT MATERIAL - NO PLASTIC INSETS.

LOUCKS | FLAT CURB AND GUTTER (12") | LOUCKS PLATE NO. 2012 | DRAWN 2/2016




NOTES:
1. CONCRETE 6" THICK OR LESS SHALL BE REINFORCED WITH WELDED WIRE FABRIC OR REINFORCING BARS. CONCRETE 7" THICK OR GREATER SHALL BE REINFORCED PER GEOTECHNICAL RECOMMENDATIONS.
2. SAWED OR FORMED CONTROL JOINTS SHOULD BE INCLUDED FOR EACH 225 SQUARE FEET OF AREA OR LESS (15 FEET BY 15 FEET).
3. SAW CUTS SHOULD NOT CUT THROUGH THE WELDED WIRE FABRIC OR REINFORCING STEEL AND DOWELS SHOULD BE UTILIZED AT FORMED AND/OR COLD JOINTS.

LOUCKS | HEAVY DUTY CONCRETE PAVEMENT SECTION | LOUCKS PLATE NO. 2033 | DRAWN 12/2016



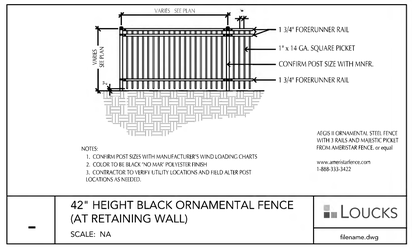

HEAVY-DUTY BITUMINOUS PAVEMENT SECTION




STANDARD BITUMINOUS PAVEMENT SECTION

REFER TO SOILS REPORT

LOUCKS | PRIVATE - BITUMINOUS PAVEMENT SECTIONS | LOUCKS PLATE NO. 2031 | DRAWN 12/2016

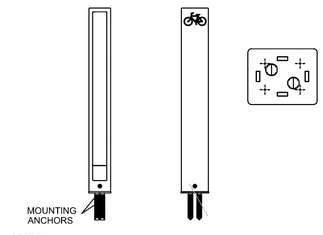



NOTES:
1. CONFIRM POST SIZES WITH MANUFACTURER'S WIND LOADING CHARTS
2. COLOR TO BE BLACK "NO MAR" POLYESTER FINISH
3. CONTRACTOR TO VERIFY UTILITY LOCATIONS AND FIELD ALTER POST LOCATIONS AS NEEDED.

ATGS II ORNAMENTAL STEEL FENCE WITH 3 RAILS AND MAJESTIC PICKET FROM AMERISTAR FENCE, or equal

www.ameristarfence.com
1-888-333-3422

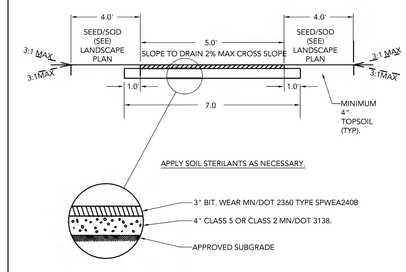
\- | 42" HEIGHT BLACK ORNAMENTAL FENCE (AT RETAINING WALL) | SCALE: NA | LOUCKS | filename.dwg




SECTION

NOTE:
1. BIKE RACK TO BE FORMS+SURFACES CAPITOL BIKE RACK
2. COLOR TO BE ALUMINUM STANDARD TEXTURE
3. PROVIDE SHOP DRAWINGS AND COLOR SAMPLES FOR OWNER FINAL COLOR SELECTION

\- | CAPITOL BIKE RACK | SCALE: 1" = 1'-0" | LOUCKS | filename.dwg




NOTE:
MAX RUNNING SLOPE TO BE 5%. MAX CROSS SLOPE TO BE 2%. NOTIFY ENGINEER PRIOR TO CONSTRUCTION IF TOPOGRAPHY ISSUES ARISE THAT IMPACT PROPOSED SLOPES.

LOUCKS | BITUMINOUS TRAIL | LOUCKS PLATE NO. 2005 | DRAWN 2/2016

# MINNETONKA SENIOR APARTMENTS

MINNETONKA, MN

GRECO
607 WASHINGTON AVE. N. SUITE 100
MINNEAPOLIS, MN 55401

LOUCKS
PLANNING
CIVIL ENGINEERING
LAND SURVEYING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL
7200 Hemlock Lane, Suite 300
Maple Grove, MN 55369
763.424.5505
www.loucksinc.com

## CADD QUALIFICATION

CADD files prepared by the Consultant for this project are instruments of the Consultant professional services for use solely with respect to this project. These CADD files shall not be used on other projects, for additions to this project, or for completion of this project by others without written approval by the Consultant. Only electronic files prepared by Loucks will be permitted to obtain copies of the CADD drawing files for information and reference only. All intentional or unintentional revisions, additions, or deletions to these CADD files shall be made at the full risk of that party making such revisions, additions or deletions and that party shall hold harmless and indemnify the Consultant from any & all responsibilities, claims, and liabilities.

## SUBMITTAL/REVISIONS

10/18/23 C TY SUBM TTAL

## PROFESSIONAL SIGNATURE

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

PJ Dach - PE
License No. 49933
Date -

## QUALITY CONTROL

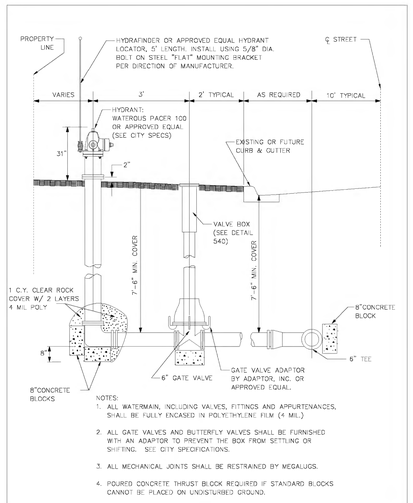
| | |
|---|---|
| Loucks Project No. | 23055A |
| Project Lead | PJD |
| Drawn By | DDL |
| Checked By | PJD |
| Review Date | 10/18/23 |

## SHEET INDEX



CIVIL DETAILS
C8-1

Plotted: 10/18/2023 10:48 AM W:\2023\23055A\CADD DATA\CIVIL_dwg Sheet Files\C8-1 CIVIL DETAILS

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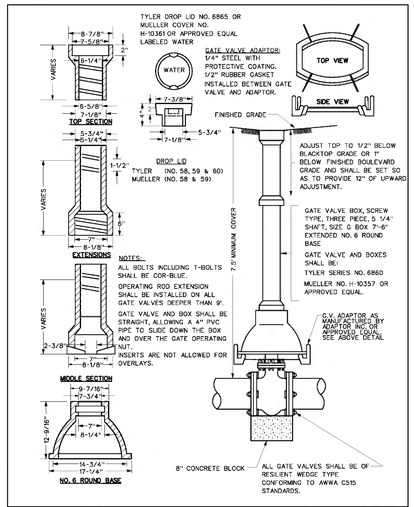
| | | APPROVED: 5/2000 REVISED: 1/2017 | |

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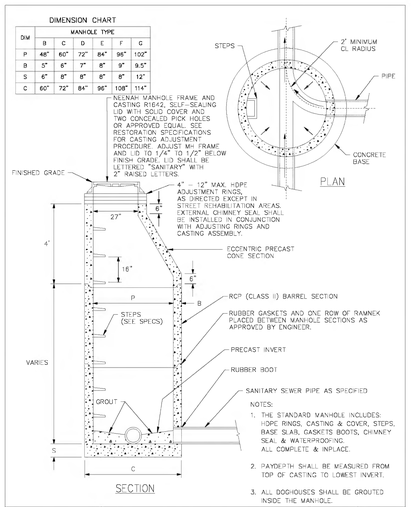
|---|---|---|---|
| | | APPROVED: 1/2008 REVISED: 1/2008 | |

DIMENSION CHART

| DIM | MANHOLE TYPE | | | | | |
|---|---|---|---|---|---|---|
| | B | C | D | E | F | G |
| P | 48" | 60" | 72" | 84" | 96" | 102" |
| B | 5" | 6" | 7" | 8" | 9" | 9.5" |
| S | 6" | 6" | 8" | 8" | 8" | 12" |
| C | 60" | 72" | 84" | 96" | 108" | 114" |




| City of minnetonka | SANITARY SEWER MANHOLE | SCALE: NOT TO SCALE | STD PLATE NO: 410 |
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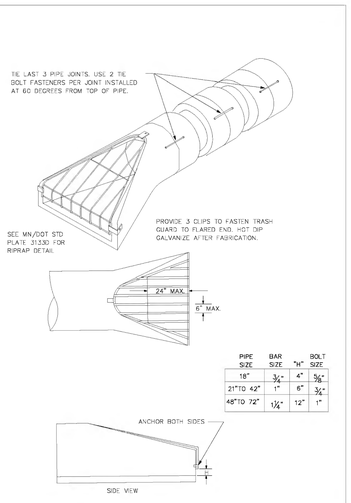
| | | APPROVED: 4/2000 REVISED: 1/2017 | |



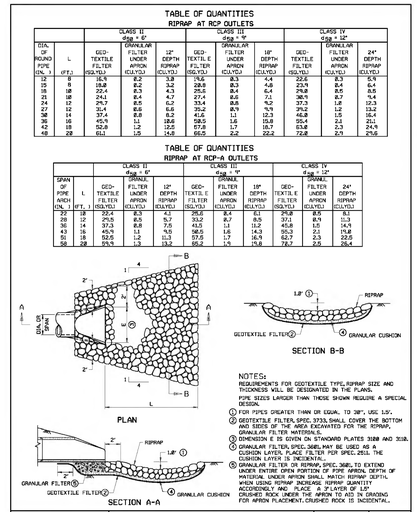

| City of minnetonka | FLARED END SECTION | SCALE: NOT TO SCALE | STD PLATE NO: 190 |
|---|---|---|---|
| | | APPROVED: 1/2008 REVISED: 1/2017 | |

TABLE OF QUANTITIES
RIPRAP AT RCP OUTLETS

| DIA. OF ROUND PIPE (IN. ) | L (FT.) | CLASS II d50 = 6" GEO-TEXTILE FILTER (SQ.YD.) | CLASS II d50 = 6" GRANULAR FILTER UNDER APRON (CU.YD.) | CLASS II d50 = 6" 12" DEPTH RIPRAP (CU.YD.) | CLASS III d50 = 9" GEO-TEXTILE FILTER (SQ.YD.) | CLASS III d50 = 9" GRANULAR FILTER UNDER APRON (CU.YD.) | CLASS III d50 = 9" 18" DEPTH RIPRAP (CU.YD.) | CLASS IV d50 = 12" GEO-TEXTILE FILTER (SQ.YD.) | CLASS IV d50 = 12" GRANULAR FILTER UNDER APRON (CU.YD.) | CLASS IV d50 = 12" 24" DEPTH RIPRAP (CU.YD.) |
|---|---|---|---|---|---|---|---|---|---|---|
| 12 | 8 | 16.4 | 2.2 | 3.8 | 19.6 | 3.3 | 4.4 | 22.6 | 4.3 | 5.9 |
| 15 | 9 | 18.8 | 2.2 | 3.2 | 22.8 | 3.3 | 4.8 | 27.9 | 4.4 | 6.4 |
| 18 | 10 | 21.2 | 2.3 | 4.2 | 26.0 | 3.4 | 5.2 | 33.2 | 4.5 | 6.9 |
| 21 | 10 | 24.1 | 2.4 | 4.7 | 27.4 | 3.6 | 7.1 | 38.5 | 4.7 | 9.4 |
| 24 | 12 | 29.7 | 2.5 | 6.2 | 33.4 | 3.8 | 9.2 | 37.3 | 1.8 | 12.3 |
| 30 | 14 | 35.4 | 2.6 | 6.8 | 39.2 | 3.9 | 9.9 | 39.2 | 1.9 | 13.2 |
| 36 | 14 | 37.4 | 2.8 | 8.2 | 41.6 | 1.1 | 12.3 | 46.8 | 1.5 | 16.4 |
| 42 | 16 | 43.5 | 1.1 | 10.6 | 59.5 | 1.6 | 15.8 | 55.4 | 2.0 | 21.1 |
| 48 | 18 | 52.8 | 1.2 | 12.5 | 67.8 | 1.7 | 18.7 | 63.8 | 2.3 | 24.9 |
| 60 | 20 | 61.1 | 1.5 | 14.6 | 85.5 | 2.2 | 22.2 | 72.8 | 2.9 | 29.6 |

TABLE OF QUANTITIES
RIPRAP AT RCP-A OUTLETS

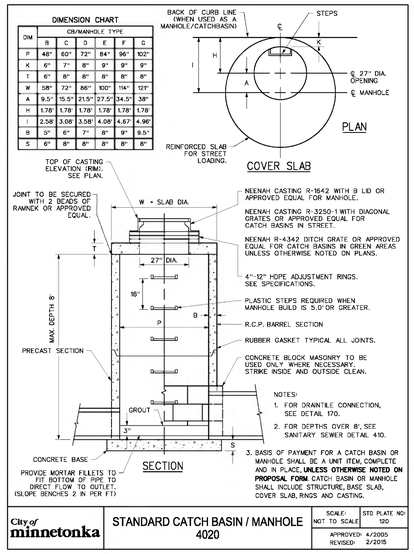
| SPAN OF PIPE ARCH (IN. ) | RISE OF PIPE ARCH (IN. ) | L (FT.) | CLASS II d50 = 6" GEO-TEXTILE FILTER (SQ.YD.) | CLASS II d50 = 6" GRANULAR FILTER UNDER APRON (CU.YD.) | CLASS II d50 = 6" 12" DEPTH RIPRAP (CU.YD.) | CLASS III d50 = 9" GEO-TEXTILE FILTER (SQ.YD.) | CLASS III d50 = 9" GRANULAR FILTER UNDER APRON (CU.YD.) | CLASS III d50 = 9" 18" DEPTH RIPRAP (CU.YD.) | CLASS IV d50 = 12" GEO-TEXTILE FILTER (SQ.YD.) | CLASS IV d50 = 12" GRANULAR FILTER UNDER APRON (CU.YD.) | CLASS IV d50 = 12" 24" DEPTH RIPRAP (CU.YD.) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 22 | 18 | 22.4 | 8.3 | 4.2 | 29.6 | 8.4 | 8.1 | 29.8 | 8.5 | 8.1 |
| 28 | 22 | 25.5 | 8.5 | 5.7 | 33.2 | 8.7 | 8.9 | 37.1 | 8.9 | 11.3 |
| 36 | 29 | 37.3 | 8.8 | 7.5 | 43.5 | 1.0 | 12.2 | 45.8 | 1.0 | 14.9 |
| 43 | 33 | 43.2 | 1.1 | 9.3 | 49.8 | 1.3 | 14.3 | 53.8 | 1.5 | 17.8 |
| 51 | 36 | 52.9 | 1.2 | 11.2 | 59.0 | 1.4 | 16.9 | 62.7 | 2.3 | 22.2 |
| 58 | 29 | 54.9 | 1.3 | 13.2 | 66.2 | 1.5 | 19.8 | 78.7 | 2.5 | 26.4 |




| APPROVED DECEMBER 9, 2013 STATE DESIGN ENGINEER | STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION RIPRAP AT RCP OUTLETS | SPECIFICATION REFERENCE 3601 3108 3601 3733 2511 | STANDARD PLATE NO. 3133D |
|---|---|---|---|

DIMENSION CHART

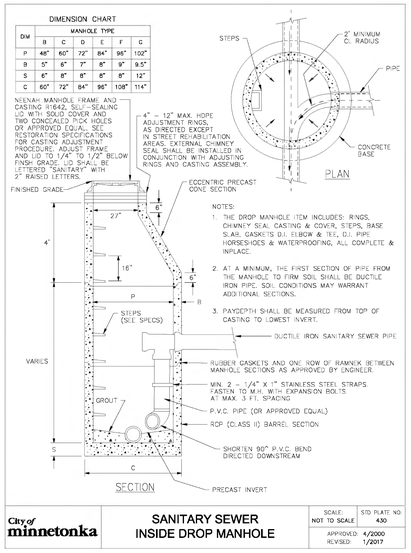
| DIM | CB/MANHOLE TYPE | | | | | |
|---|---|---|---|---|---|---|
| | B | C | D | E | F | G |
| P | 48" | 60" | 72" | 84" | 96" | 102" |
| K | 6" | 7" | 8" | 9" | 9" | 9" |
| I | 6" | 8" | 8" | 8" | 8" | 12" |
| W | 58" | 72" | 86" | 100" | 114" | 128" |
| A | 9.5" | 15.5" | 21.5" | 27.5" | 34.5" | 38" |
| H | 1.78' | 1.78' | 1.78' | 1.78' | 1.78' | 1.78' |
| L | 2.58 | 3.08 | 3.58 | 4.08 | 4.67 | 4.96 |
| R | 5" | 6" | 7" | 8" | 9" | 9.5" |
| S | 6" | 8" | 8" | 8" | 8" | 8" |




| City of minnetonka | STANDARD CATCH BASIN / MANHOLE 4020 | SCALE: NOT TO SCALE | STD PLATE NO: 120 |
|---|---|---|---|
| | | APPROVED: 4/2005 REVISED: 2/2015 | |

DIMENSION CHART

| DIM | MANHOLE TYPE | | | | | |
|---|---|---|---|---|---|---|
| | B | C | D | E | F | G |
| P | 48" | 60" | 72" | 84" | 96" | 102" |
| B | 5" | 6" | 7" | 8" | 9" | 9.5" |
| S | 6" | 8" | 8" | 8" | 8" | 12" |
| C | 60" | 72" | 84" | 96" | 108" | 114" |




| City of minnetonka | SANITARY SEWER INSIDE DROP MANHOLE | SCALE: NOT TO SCALE | STD PLATE NO: 430 |
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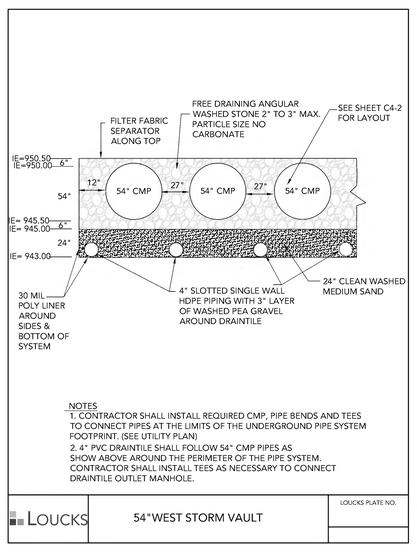
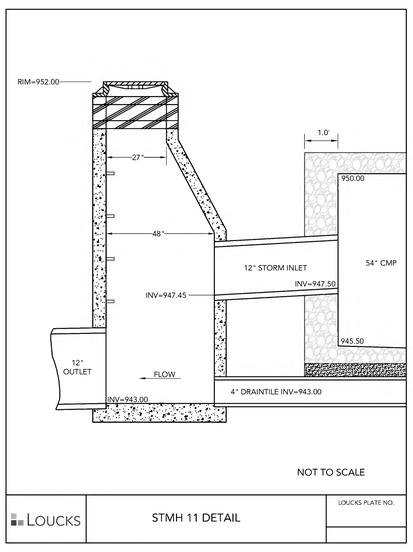
| | | APPROVED: 4/2000 REVISED: 1/2017 | |



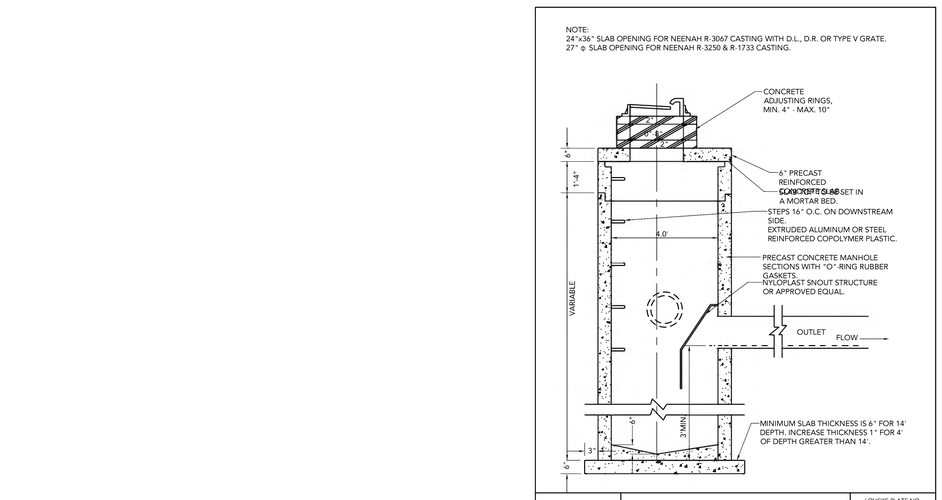

NOTES
1. CONTRACTOR SHALL INSTALL REQUIRED CMP, PIPE BENDS AND TEES TO CONNECT PIPES AT THE LIMITS OF THE UNDERGROUND PIPE SYSTEM FOOTPRINT. (SEE UTILITY PLAN)
2. 4" PVC DRAINTILE SHALL FOLLOW 54" CMP PIPES AS SHOW ABOVE AROUND THE PERIMETER OF THE PIPE SYSTEM. CONTRACTOR SHALL INSTALL TEES AS NECESSARY TO CONNECT DRAINTILE OUTLET MANHOLE.

| LOUCKS | 54"WEST STORM VAULT | LOUCKS PLATE NO. |
|---|---|---|

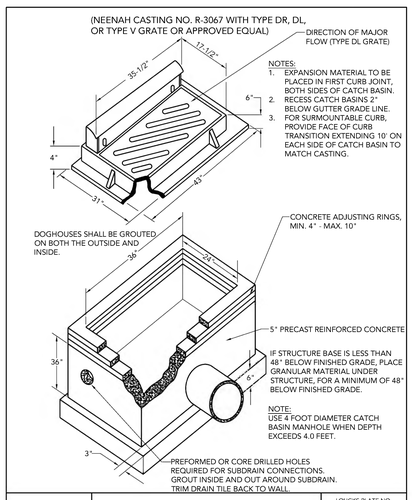



NOT TO SCALE

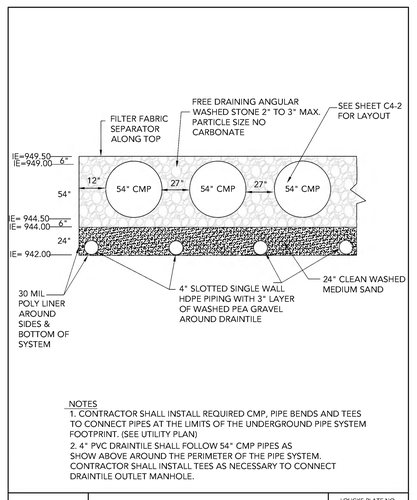
| LOUCKS | STMH 11 DETAIL | LOUCKS PLATE NO. |
|---|---|---|




| LOUCKS | SUMP CATCH BASIN / MANHOLE | LOUCKS PLATE NO. 4304 |
|---|---|---|
| | | DRAWN 2/2016 |

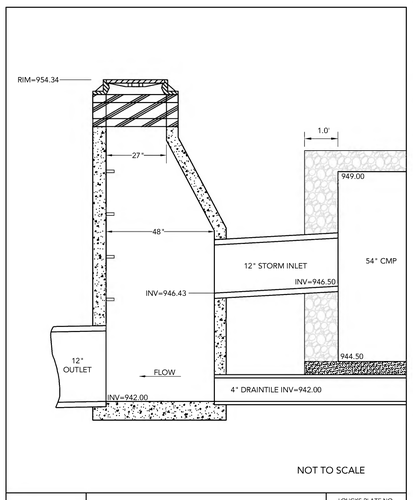



| LOUCKS | 2'x3' CATCH BASIN (MAX. DEPTH 4.0') | LOUCKS PLATE NO. 4302 |
|---|---|---|
| | | DRAWN 12/2016 |




NOTES
1. CONTRACTOR SHALL INSTALL REQUIRED CMP, PIPE BENDS AND TEES TO CONNECT PIPES AT THE LIMITS OF THE UNDERGROUND PIPE SYSTEM FOOTPRINT. (SEE UTILITY PLAN)
2. 4" PVC DRAINTILE SHALL FOLLOW 54" CMP PIPES AS SHOW ABOVE AROUND THE PERIMETER OF THE PIPE SYSTEM. CONTRACTOR SHALL INSTALL TEES AS NECESSARY TO CONNECT DRAINTILE OUTLET MANHOLE.

| LOUCKS | 54" EAST STORM VAULT | LOUCKS PLATE NO. |
|---|---|---|




NOT TO SCALE

| LOUCKS | STMH 4 DETAIL | LOUCKS PLATE NO. |
|---|---|---|


MINNETONKA SENIOR APARTMENTS
MINNETONKA, MN

GRECO
607 WASHINGTON AVE. N. SUITE 100
MINNEAPOLIS, MN 55401

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LAND SURVEYING
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7200 Hemlock Lane, Suite 300
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**CADD QUALIFICATION**

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**SUBMITTAL/REVISIONS**

10/18/23 C TY SUBM TTAL

**PROFESSIONAL SIGNATURE**

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

PJ Disch - PE
License No. 49933
Date -

**QUALITY CONTROL**

| | |
|---|---|
| Loucks Project No. | 23055A |
| Project Lead | PJD |
| Drawn By | DDL |
| Checked By | PJD |
| Review Date | 10/18/23 |

**SHEET INDEX**



CIVIL DETAILS
C8-2


Plotted: 10/18/2023 10:48 AM W:\2023\23055A\CADD DATA\CIVIL.dwg Sheet Files\C8-2 CIVIL DETAILS

# Stormwater Management Plan

## Greco Independent & Assisted Living
Minnetonka, MN

**Prepared by Loucks**
**October 16, 2023**

**Loucks Project No. 23055A**



www.loucksinc.com | 7200 Hemlock Lane, Suite 300, Maple Grove, MN 55369 | 763.424.5505

# Greco Independent & Assisted Living

Minnetonka, Minnesota

## Stormwater Management Plan

Table of Contents



### Appendices



### Figures

# Greco Independent & Assisted Living

Minnetonka, Minnesota

# Stormwater Management Plan

## Introduction

This stormwater management plan was created for the Greco Independent and Assisted Living apartments project located at 15407 & 15409 Wayzata Boulevard in Minnetonka, MN. The project site encompasses roughly 19.18 acres.

The project generally consists of constructing two new apartment buildings, parking lot, and associated utilities.

Included in this plan are calculations for the existing and proposed discharge of storm water from the site.

## Methodology

City of Minnetonka and Minnehaha Creek Watershed District:

1. Rate Control – Runoff rates for the proposed activity shall not exceed runoff rates for the 1, 10, & 100-year critical storm events.
2. Volume/Water Quality Control –Treat onsite the equivalent to 1.1" of runoff generated from new impervious. If filtration is used only 50% is received.
3. There is to be no increase in phosphorus from the existing conditions

Methodology

The stormwater calculations were made utilizing the stormwater-modeling program HydroCAD 10.00. Calculations were performed for Atlas-14 1-year, 2-year, 10-year, and 100-year rainfall events of 2.48 inches, 2.86 inches, 4.26 inches, and 7.32 inches respectively.

## Existing Conditions

The existing site is a former healthcare and rehabilitation center. The existing site is 19.18 acres, for the storm report the areas used in this report are for the disturbed area of 6.973 acres. The existing site will be broken up into two drainage areas. Drainage area DA-1E drains off-site to the wetlands and drainage area DA-2E drains off-site to Clare Lane. There is no existing stormwater treatment onsite.

## Proposed Conditions

The proposed site consists of constructing a multi-story apartment building with below ground parking garage, a assisted living single story building with parking lots, entrance drives, utilities, and stormwater management practices. To meet stormwater requirements for the site, two underground filtration storm vaults will be used. The site will be broken up into four drainage areas.

Drainage area DA-1P will drain to the west underground filtration storm vault. Drainage area DA-2P will drain to the east underground filtration storm vault. Drainage area DA-4P will drain off-site to the wetlands. Drainage area DA-3P will drain off-site to Clare Lane.

Rate Control

The rate control requirements are that peak rates shall not exceed existing rates for the 2, 10, and 100-year events.

Tables 1.1 below lists the existing areas and runoff rates
Tables 1.2 below lists the proposed areas and runoff rates

**Table 1.1 – Existing Peak Runoff Rates**

| Existing Conditions | | | | | | |
|---|---|---|---|---|---|---|
| | | | 1-YR Event | 2-YR Event | 10-YR Event | 100-YR Event |
| Subcatch | Area (SF) | Impervious (SF) | Rate (cfs) | Rate (cfs) | Rate (cfs) | Rate (cfs) |
| DA-1E Wetland | 258,158 | 108,763 | 10.43 | 12.82 | 22.29 | 42.84 |
| DA-2E Street | 45,571 | 28,816 | 2.13 | 2.56 | 4.24 | 7.84 |
| **TOTAL EXISTING** | **303,729** | **137,579** | **12.56** | **15.50** | **26.54** | **50.68** |

**Table 1.2 – Proposed Peak Runoff Rates**

| Proposed Conditions | | | | | | |
|---|---|---|---|---|---|---|
| | | | 1-YR Event | 2-YR Event | 10-YR Event | 100-YR Event |
| Subcatch | Area (SF) | Impervious (SF) | Rate (cfs) | Rate (cfs) | Rate (cfs) | Rate (cfs) |
| DA-1P West Vault | 122,695 | 114,448 | 0.43 | 0.43 | 0.43 | 1.07 |
| DA-2P East Vault | 74,052 | 57,158 | 0.21 | 0.21 | 0.21 | 1.99 |
| DA-4P | 91,386 | 14,988 | 2.79 | 3.61 | 6.79 | 14.05 |
| **Total WETLAND** | **288,133** | **186,594** | **3.35** | **4.25** | **7.44** | **15.56** |
| DA-3P Street | 15,596 | 2,754 | 0.69 | 0.88 | 1.64 | 3.36 |
| **TOTAL PROPOSED** | **303,729** | **189,348** | **3.6** | **4.63** | **8.13** | **16.90** |

Volume Control

A water quality volume of 1.1" of runoff from the new impervious surfaces created by the project is treated. Required volume calculations are shown below:

| | | | |
|---|---|---|---|
| Volume Required: | 189,348 SF x 1.1" x 1'/12" | = | 17,357 CF |
| Volume Provided: | West Vault (945.50-947.50) | = | 26,745 CF |
| Volume Provided: | East Vault (944.50-946.50) | = | 13,111 CF |
| Total Volume Provided: | | = | 39,856 CF |

With filtration being used only 50% credit is allowed for filtration. Therefore 50% of 39,856 =19,928 CF which meets the requirement of 17,382 CF

Water Quality

For projects that have met the infiltration/filtration volume control requirements above, the pollutant removal requirements are considered to be met. The watershed requires that there is no net increase in phosphorus (TP) leaving the site from the existing site to the proposed site. The existing site TP is 7.235 lbs & the proposed TP is 5.433 lbs.

## Best Management Practices

Best management practices (BMP's) will be implemented during construction per the project Stormwater Pollution Prevention Plan (C3-2 & C3-3). During construction, erosion control measures will include dust control, silt fencing, bio logs, inlet protection, and a temporary rock construction entrance. Permanent BMP's will include stormwater management systems, surface pavements, and turf establishment (vegetation) of disturbed areas.

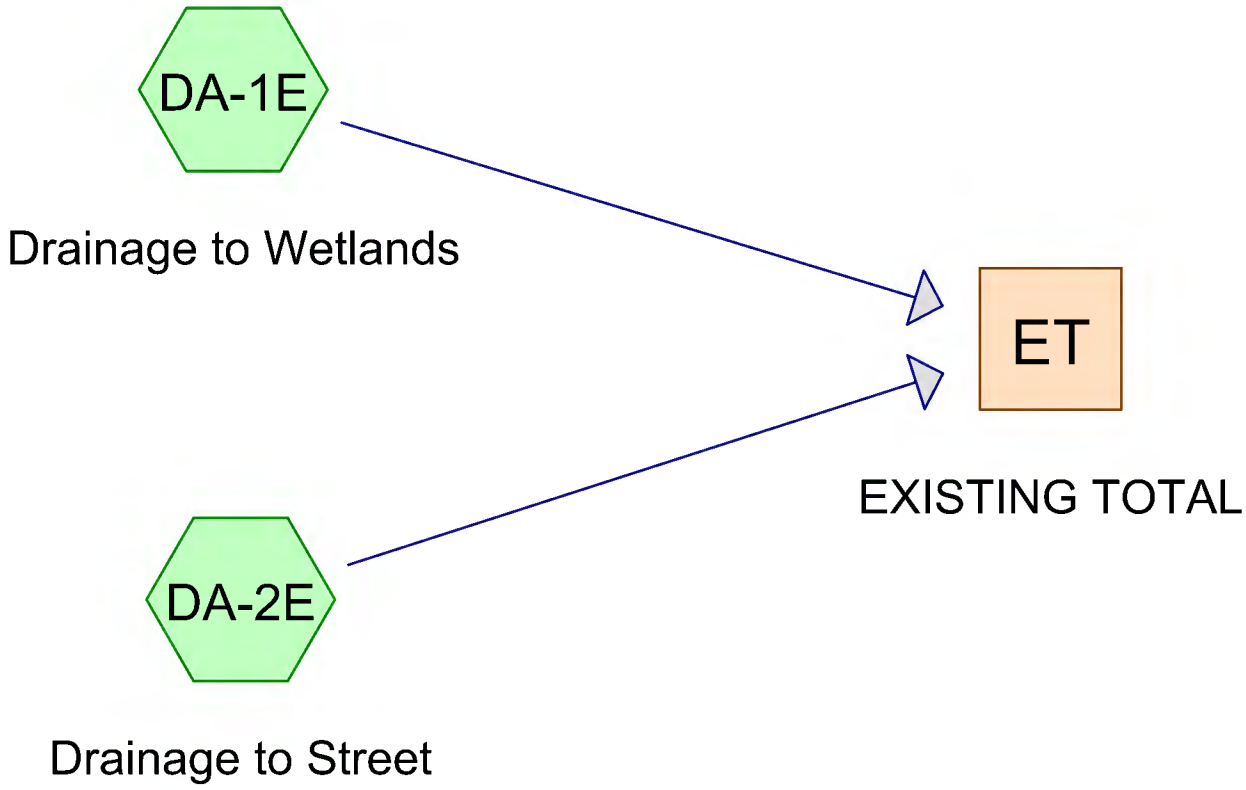
## Conclusion

The proposed Stormwater Management Plan for the project provides a solution for the conveyance of stormwater from the site. The underground filtration vaults capture the runoff and outlets to city storm sewer. They will provide rate control for the development and meet water quality requirements through the proposed filtration.

# Appendix A

Existing HydroCAD Report

EXISTING SITE




Subcat Reach Pond Link

**Routing Diagram for Greco**
Prepared by {enter your company name here}, Printed 10/1/2023

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment DA-1E: Drainage to** Runoff Area=258,158 sf 42.13% Impervious Runoff Depth=1.36"
Tc=15.0 min CN=88 Runoff=10.43 cfs 0.674 af

**Subcatchment DA-2E: Drainage to Street** Runoff Area=45,571 sf 63.23% Impervious Runoff Depth=1.59"
Tc=15.0 min CN=91 Runoff=2.13 cfs 0.139 af

**Reach ET: EXISTING TOTAL** Inflow=12.56 cfs 0.813 af
Outflow=12.56 cfs 0.813 af

**Total Runoff Area = 6.973 ac Runoff Volume = 0.813 af Average Runoff Depth = 1.40"**
**54.70% Pervious = 3.814 ac 45.30% Impervious = 3.158 ac**

## Summary for Subcatchment DA-1E: Drainage to Wetlands

Runoff = 10.43 cfs @ 12.24 hrs, Volume= 0.674 af, Depth= 1.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-Year Rainfall=2.48"

| Area (sf) | CN | Description |
|---|---|---|
| 108,763 | 98 | Paved parking, HSG D |
| 149,395 | 80 | >75% Grass cover, Good, HSG D |
| 258,158 | 88 | Weighted Average |
| 149,395 | | 57.87% Pervious Area |
| 108,763 | | 42.13% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment DA-2E: Drainage to Street

Runoff = 2.13 cfs @ 12.23 hrs, Volume= 0.139 af, Depth= 1.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-Year Rainfall=2.48"

| Area (sf) | CN | Description |
|---|---|---|
| 28,816 | 98 | Paved parking, HSG D |
| 16,755 | 80 | >75% Grass cover, Good, HSG D |
| 45,571 | 91 | Weighted Average |
| 16,755 | | 36.77% Pervious Area |
| 28,816 | | 63.23% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.0 | | | | | **Direct Entry,** |

## Summary for Reach ET: EXISTING TOTAL

Inflow Area = 6.973 ac, 45.30% Impervious, Inflow Depth = 1.40" for 1-Year event
Inflow = 12.56 cfs @ 12.24 hrs, Volume= 0.813 af
Outflow = 12.56 cfs @ 12.24 hrs, Volume= 0.813 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment DA-1E: Drainage to** Runoff Area=258,158 sf 42.13% Impervious Runoff Depth=1.69"
Tc=15.0 min CN=88 Runoff=12.92 cfs 0.837 af

**Subcatchment DA-2E: Drainage to Street** Runoff Area=45,571 sf 63.23% Impervious Runoff Depth=1.94"
Tc=15.0 min CN=91 Runoff=2.58 cfs 0.169 af

**Reach ET: EXISTING TOTAL** Inflow=15.50 cfs 1.006 af
Outflow=15.50 cfs 1.006 af

**Total Runoff Area = 6.973 ac Runoff Volume = 1.006 af Average Runoff Depth = 1.73"**
**54.70% Pervious = 3.814 ac 45.30% Impervious = 3.158 ac**

## Summary for Subcatchment DA-1E: Drainage to Wetlands

Runoff = 12.92 cfs @ 12.24 hrs, Volume= 0.837 af, Depth= 1.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.86"

| Area (sf) | CN | Description |
|---|---|---|
| 108,763 | 98 | Paved parking, HSG D |
| 149,395 | 80 | >75% Grass cover, Good, HSG D |
| 258,158 | 88 | Weighted Average |
| 149,395 | | 57.87% Pervious Area |
| 108,763 | | 42.13% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment DA-2E: Drainage to Street

Runoff = 2.58 cfs @ 12.23 hrs, Volume= 0.169 af, Depth= 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.86"

| Area (sf) | CN | Description |
|---|---|---|
| 28,816 | 98 | Paved parking, HSG D |
| 16,755 | 80 | >75% Grass cover, Good, HSG D |
| 45,571 | 91 | Weighted Average |
| 16,755 | | 36.77% Pervious Area |
| 28,816 | | 63.23% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.0 | | | | | **Direct Entry,** |

## Summary for Reach ET: EXISTING TOTAL

Inflow Area = 6.973 ac, 45.30% Impervious, Inflow Depth = 1.73" for 2-Year event
Inflow = 15.50 cfs @ 12.24 hrs, Volume= 1.006 af
Outflow = 15.50 cfs @ 12.24 hrs, Volume= 1.006 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment DA-1E: Drainage to** Runoff Area=258,158 sf 42.13% Impervious Runoff Depth=2.97"
Tc=15.0 min CN=88 Runoff=22.29 cfs 1.467 af

**Subcatchment DA-2E: Drainage to Street** Runoff Area=45,571 sf 63.23% Impervious Runoff Depth=3.27"
Tc=15.0 min CN=91 Runoff=4.24 cfs 0.285 af

**Reach ET: EXISTING TOTAL** Inflow=26.54 cfs 1.752 af
Outflow=26.54 cfs 1.752 af

**Total Runoff Area = 6.973 ac Runoff Volume = 1.752 af Average Runoff Depth = 3.02"**
**54.70% Pervious = 3.814 ac 45.30% Impervious = 3.158 ac**

## Summary for Subcatchment DA-1E: Drainage to Wetlands

Runoff = 22.29 cfs @ 12.23 hrs, Volume= 1.467 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=4.26"

| Area (sf) | CN | Description |
|---|---|---|
| 108,763 | 98 | Paved parking, HSG D |
| 149,395 | 80 | >75% Grass cover, Good, HSG D |
| 258,158 | 88 | Weighted Average |
| 149,395 | | 57.87% Pervious Area |
| 108,763 | | 42.13% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment DA-2E: Drainage to Street

Runoff = 4.24 cfs @ 12.23 hrs, Volume= 0.285 af, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=4.26"

| Area (sf) | CN | Description |
|---|---|---|
| 28,816 | 98 | Paved parking, HSG D |
| 16,755 | 80 | >75% Grass cover, Good, HSG D |
| 45,571 | 91 | Weighted Average |
| 16,755 | | 36.77% Pervious Area |
| 28,816 | | 63.23% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.0 | | | | | **Direct Entry,** |

## Summary for Reach ET: EXISTING TOTAL

Inflow Area = 6.973 ac, 45.30% Impervious, Inflow Depth = 3.02" for 10-Year event
Inflow = 26.54 cfs @ 12.23 hrs, Volume= 1.752 af
Outflow = 26.54 cfs @ 12.23 hrs, Volume= 1.752 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment DA-1E: Drainage to** Runoff Area=258,158 sf 42.13% Impervious Runoff Depth=5.90"
Tc=15.0 min CN=88 Runoff=42.84 cfs 2.916 af

**Subcatchment DA-2E: Drainage to Street** Runoff Area=45,571 sf 63.23% Impervious Runoff Depth=6.25"
Tc=15.0 min CN=91 Runoff=7.84 cfs 0.545 af

**Reach ET: EXISTING TOTAL** Inflow=50.68 cfs 3.461 af
Outflow=50.68 cfs 3.461 af

**Total Runoff Area = 6.973 ac Runoff Volume = 3.461 af Average Runoff Depth = 5.96"**
**54.70% Pervious = 3.814 ac 45.30% Impervious = 3.158 ac**

## Summary for Subcatchment DA-1E: Drainage to Wetlands

Runoff = 42.84 cfs @ 12.23 hrs, Volume= 2.916 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=7.32"

| Area (sf) | CN | Description |
|---|---|---|
| 108,763 | 98 | Paved parking, HSG D |
| 149,395 | 80 | >75% Grass cover, Good, HSG D |
| 258,158 | 88 | Weighted Average |
| 149,395 | | 57.87% Pervious Area |
| 108,763 | | 42.13% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment DA-2E: Drainage to Street

Runoff = 7.84 cfs @ 12.23 hrs, Volume= 0.545 af, Depth= 6.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=7.32"

| Area (sf) | CN | Description |
|---|---|---|
| 28,816 | 98 | Paved parking, HSG D |
| 16,755 | 80 | >75% Grass cover, Good, HSG D |
| 45,571 | 91 | Weighted Average |
| 16,755 | | 36.77% Pervious Area |
| 28,816 | | 63.23% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.0 | | | | | **Direct Entry,** |

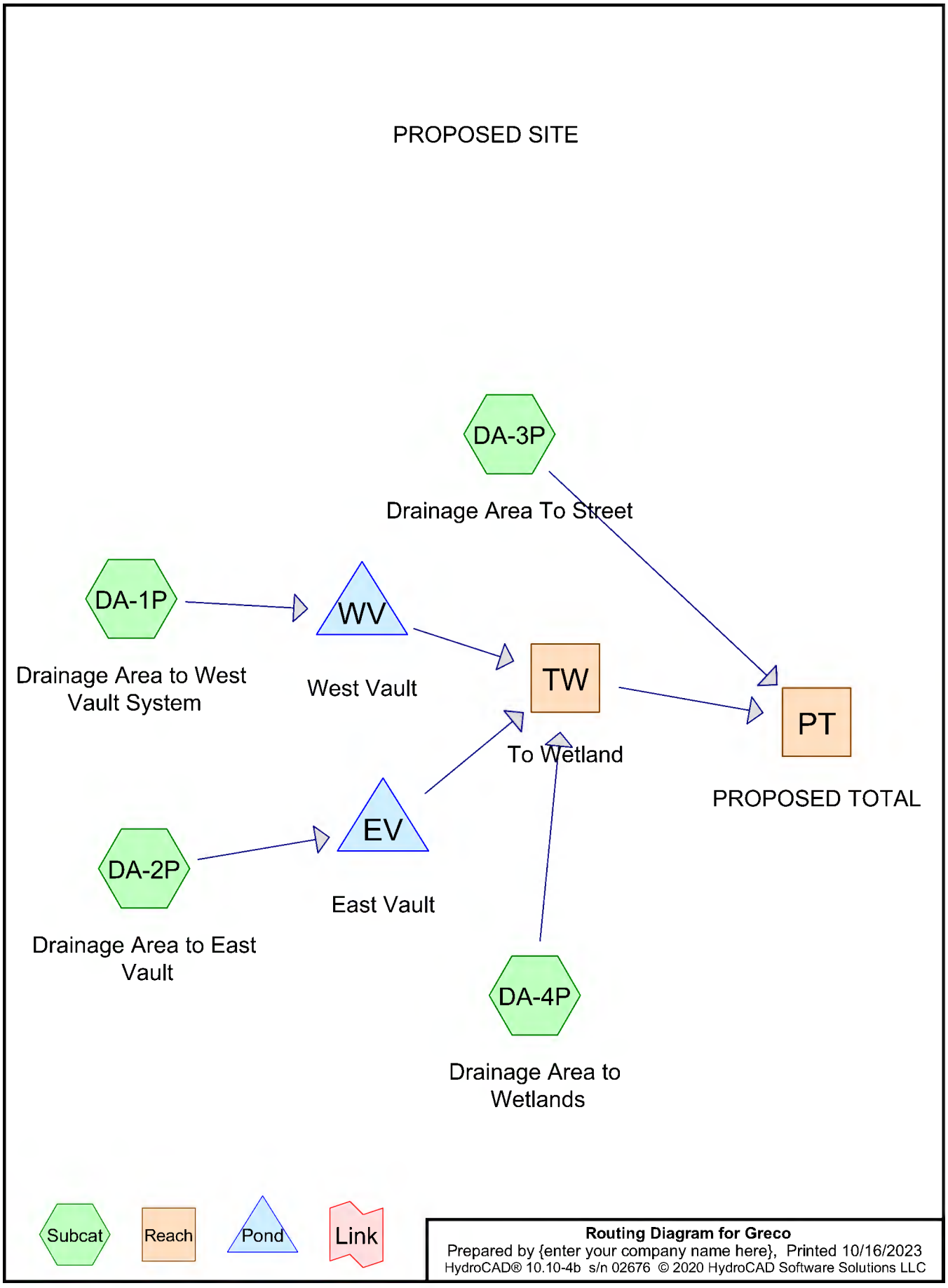
## Summary for Reach ET: EXISTING TOTAL

Inflow Area = 6.973 ac, 45.30% Impervious, Inflow Depth = 5.96" for 100-Year event
Inflow = 50.68 cfs @ 12.23 hrs, Volume= 3.461 af
Outflow = 50.68 cfs @ 12.23 hrs, Volume= 3.461 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

# Appendix B

Proposed HydroCAD Report


PROPOSED SITE
DA-3P
Drainage Area To Street
DA-1P
Drainage Area to West Vault System
WV
West Vault
TW
To Wetland
PT
PROPOSED TOTAL
DA-2P
Drainage Area to East Vault
EV
East Vault
DA-4P
Drainage Area to Wetlands
Subcat
Reach
Pond
Link
Routing Diagram for Greco
Prepared by {enter your company name here}, Printed 10/16/2023
HydroCAD® 10.10-4b s/n 02676 © 2020 HydroCAD Software Solutions LLC

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment DA-1P: Drainage Area to** Runoff Area=122,695 sf 93.28% Impervious Runoff Depth=2.14"
Tc=5.0 min CN=97 Runoff=10.01 cfs 0.503 af

**Subcatchment DA-2P: Drainage Area to** Runoff Area=74,052 sf 77.19% Impervious Runoff Depth=1.85"
Tc=5.0 min CN=94 Runoff=5.51 cfs 0.262 af

**Subcatchment DA-3P: Drainage Area To** Runoff Area=15,596 sf 17.66% Impervious Runoff Depth=1.04"
Tc=5.0 min CN=83 Runoff=0.69 cfs 0.031 af

**Subcatchment DA-4P: Drainage Area to** Runoff Area=91,386 sf 16.40% Impervious Runoff Depth=1.04"
Tc=15.0 min CN=83 Runoff=2.79 cfs 0.182 af

**Reach PT: PROPOSED TOTAL** Inflow=3.62 cfs 0.978 af
Outflow=3.62 cfs 0.978 af

**Reach TW: To Wetland** Inflow=3.35 cfs 0.947 af
Outflow=3.35 cfs 0.947 af

**Pond EV: East Vault** Peak Elev=945.01' Storage=7,172 cf Inflow=5.51 cfs 0.262 af
Outflow=0.21 cfs 0.262 af

**Pond WV: West Vault** Peak Elev=945.28' Storage=13,984 cf Inflow=10.01 cfs 0.503 af
Outflow=0.43 cfs 0.503 af

**Total Runoff Area = 6.973 ac Runoff Volume = 0.978 af Average Runoff Depth = 1.68"**
**37.66% Pervious = 2.626 ac 62.34% Impervious = 4.347 ac**

## Summary for Subcatchment DA-1P: Drainage Area to West Vault System

Runoff = 10.01 cfs @ 12.11 hrs, Volume= 0.503 af, Depth= 2.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-Year Rainfall=2.48"

| Area (sf) | CN | Description |
|---|---|---|
| 114,448 | 98 | Paved parking, HSG D |
| 8,247 | 80 | >75% Grass cover, Good, HSG D |
| 122,695 | 97 | Weighted Average |
| 8,247 | | 6.72% Pervious Area |
| 114,448 | | 93.28% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment DA-2P: Drainage Area to East Vault

Runoff = 5.51 cfs @ 12.11 hrs, Volume= 0.262 af, Depth= 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-Year Rainfall=2.48"

| Area (sf) | CN | Description |
|---|---|---|
| 57,158 | 98 | Paved parking, HSG D |
| 16,894 | 80 | >75% Grass cover, Good, HSG D |
| 74,052 | 94 | Weighted Average |
| 16,894 | | 22.81% Pervious Area |
| 57,158 | | 77.19% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment DA-3P: Drainage Area To Street

Runoff = 0.69 cfs @ 12.12 hrs, Volume= 0.031 af, Depth= 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-Year Rainfall=2.48"

| Area (sf) | CN | Description |
|---|---|---|
| 2,754 | 98 | Paved parking, HSG D |
| 12,842 | 80 | >75% Grass cover, Good, HSG D |
| 15,596 | 83 | Weighted Average |
| 12,842 | | 82.34% Pervious Area |
| 2,754 | | 17.66% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment DA-4P: Drainage Area to Wetlands

Runoff = 2.79 cfs @ 12.24 hrs, Volume= 0.182 af, Depth= 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-Year Rainfall=2.48"

| Area (sf) | CN | Description |
|---|---|---|
| 14,988 | 98 | Paved parking, HSG D |
| 76,398 | 80 | >75% Grass cover, Good, HSG D |
| 91,386 | 83 | Weighted Average |
| 76,398 | | 83.60% Pervious Area |
| 14,988 | | 16.40% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.0 | | | | | **Direct Entry,** |

## Summary for Reach PT: PROPOSED TOTAL

Inflow Area = 6.973 ac, 62.34% Impervious, Inflow Depth = 1.68" for 1-Year event
Inflow = 3.62 cfs @ 12.25 hrs, Volume= 0.978 af
Outflow = 3.62 cfs @ 12.25 hrs, Volume= 0.978 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Reach TW: To Wetland

Inflow Area = 6.615 ac, 64.76% Impervious, Inflow Depth = 1.72" for 1-Year event
Inflow = 3.35 cfs @ 12.26 hrs, Volume= 0.947 af
Outflow = 3.35 cfs @ 12.26 hrs, Volume= 0.947 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Pond EV: East Vault

Inflow Area = 1.700 ac, 77.19% Impervious, Inflow Depth = 1.85" for 1-Year event
Inflow = 5.51 cfs @ 12.11 hrs, Volume= 0.262 af
Outflow = 0.21 cfs @ 12.05 hrs, Volume= 0.262 af, Atten= 96%, Lag= 0.0 min
Primary = 0.21 cfs @ 12.05 hrs, Volume= 0.262 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 945.01' @ 13.54 hrs Surf.Area= 18,423 sf Storage= 7,172 cf

Plug-Flow detention time= 350.0 min calculated for 0.262 af (100% of inflow)
Center-of-Mass det. time= 349.3 min ( 1,129.6 - 780.3 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1A | 944.00' | 5,387 cf | **20.00'W x 217.00'L x 5.50'H Field A**<br>23,870 cf Overall - 10,401 cf Embedded = 13,469 cf x 40.0% Voids |
| #2A | 944.50' | 10,401 cf | **CMP Round 54** x 33 Inside #1<br>Effective Size= 54.0"W x 54.0"H => 15.90 sf x 20.00'L = 318.1 cf<br>Overall Size= 54.0"W x 54.0"H x 20.00'L<br>Row Length Adjustment= -14.00' x 15.90 sf x 3 rows<br>18.00' Header x 15.90 sf x 2 = 572.6 cf Inside |
| #3 | 942.00' | 2,580 cf | **20.00'W x 215.00'L x 2.00'H Prismatoid**<br>8,600 cf Overall x 30.0% Voids |
| #4B | 944.00' | 6,031 cf | **53.75'W x 91.00'L x 5.50'H Field B**<br>26,902 cf Overall - 11,825 cf Embedded = 15,077 cf x 40.0% Voids |
| #5B | 944.50' | 11,825 cf | **CMP Round 54** x 32 Inside #4<br>Effective Size= 54.0"W x 54.0"H => 15.90 sf x 20.00'L = 318.1 cf<br>Overall Size= 54.0"W x 54.0"H x 20.00'L<br>32 Chambers in 8 Rows<br>51.75' Header x 15.90 sf x 2 = 1,646.1 cf Inside |
| #6 | 942.00' | 29 cf | **53.75'W x 91.00'L x 2.00'H Prismatoid**<br>9,783 cf Overall x 0.3% Voids |
| | | 36,254 cf | Total Available Storage |

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 942.00' | **12.0" Round Culvert**<br>L= 261.0' RCP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 942.00' / 941.00' S= 0.0038 '/' Cc= 0.900<br>n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf |
| #2 | Device 1 | 942.00' | **0.500 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 946.50' | **12.0" Round Culvert**<br>L= 8.0' RCP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 946.50' / 946.47' S= 0.0037 '/' Cc= 0.900<br>n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf |

**Primary OutFlow** Max=0.21 cfs @ 12.05 hrs HW=944.06' (Free Discharge)
└**1=Culvert** (Passes 0.21 cfs of 2.91 cfs potential flow)
  ├**2=Exfiltration** (Exfiltration Controls 0.21 cfs)
  └**3=Culvert** ( Controls 0.00 cfs)

## Summary for Pond WV: West Vault

Inflow Area = 2.817 ac, 93.28% Impervious, Inflow Depth = 2.14" for 1-Year event
Inflow = 10.01 cfs @ 12.11 hrs, Volume= 0.503 af
Outflow = 0.43 cfs @ 12.30 hrs, Volume= 0.503 af, Atten= 96%, Lag= 11.3 min
Primary = 0.43 cfs @ 12.30 hrs, Volume= 0.503 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 945.28' @ 13.46 hrs Surf.Area= 37,578 sf Storage= 13,984 cf

Plug-Flow detention time= 466.7 min calculated for 0.503 af (100% of inflow)

Center-of-Mass det. time= 466.5 min ( 1,229.9 - 763.5 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1A | 945.00' | 8,449 cf | **53.75'W x 151.00'L x 5.00'H Field A**<br>40,581 cf Overall - 19,459 cf Embedded = 21,122 cf x 40.0% Voids |
| #2A | 945.00' | 19,459 cf | **CMP Round 54** x 56 Inside #1<br>Effective Size= 54.0"W x 54.0"H => 15.90 sf x 20.00'L = 318.1 cf<br>Overall Size= 54.0"W x 54.0"H x 20.00'L<br>56 Chambers in 8 Rows<br>51.75' Header x 15.90 sf x 2 = 1,646.1 cf Inside |
| #3 | 943.00' | 4,870 cf | **53.75'W x 151.00'L x 2.00'H Prismatoid**<br>16,233 cf Overall x 30.0% Voids |
| #4B | 945.00' | 3,062 cf | **20.00'W x 122.50'L x 5.50'H Field B**<br>13,475 cf Overall - 5,821 cf Embedded = 7,654 cf x 40.0% Voids |
| #5B | 945.50' | 5,821 cf | **CMP Round 54** x 18 Inside #4<br>Effective Size= 54.0"W x 54.0"H => 15.90 sf x 20.00'L = 318.1 cf<br>Overall Size= 54.0"W x 54.0"H x 20.00'L<br>Row Length Adjustment= -4.00' x 15.90 sf x 3 rows<br>18.00' Header x 15.90 sf x 1 = 286.3 cf Inside |
| #6 | 943.00' | 1,470 cf | **20.00'W x 122.50'L x 2.00'H Prismatoid**<br>4,900 cf Overall x 30.0% Voids |
| #7C | 945.00' | 882 cf | **40.25'W x 16.00'L x 5.50'H Field C**<br>3,542 cf Overall - 1,336 cf Embedded = 2,206 cf x 40.0% Voids |
| #8C | 945.50' | 1,336 cf | **CMP Round 54** x 6 Inside #7<br>Effective Size= 54.0"W x 54.0"H => 15.90 sf x 20.00'L = 318.1 cf<br>Overall Size= 54.0"W x 54.0"H x 20.00'L<br>Row Length Adjustment= -6.00' x 15.90 sf x 6 rows |
| #9 | 943.00' | 386 cf | **16.00'W x 40.25'L x 2.00'H Prismatoid**<br>1,288 cf Overall x 30.0% Voids |
| #10D | 945.00' | 8,725 cf | **53.75'W x 131.00'L x 5.50'H Field D**<br>38,727 cf Overall - 16,914 cf Embedded = 21,813 cf x 40.0% Voids |
| #11D | 945.50' | 16,914 cf | **CMP Round 54** x 48 Inside #10<br>Effective Size= 54.0"W x 54.0"H => 15.90 sf x 20.00'L = 318.1 cf<br>Overall Size= 54.0"W x 54.0"H x 20.00'L<br>48 Chambers in 8 Rows<br>51.75' Header x 15.90 sf x 2 = 1,646.1 cf Inside |
| #12 | 943.00' | 4,870 cf | **53.75'W x 151.00'L x 2.00'H Prismatoid**<br>16,233 cf Overall x 30.0% Voids |
| | | 76,244 cf | Total Available Storage |

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard
Storage Group C created with Chamber Wizard
Storage Group D created with Chamber Wizard

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 943.00' | **12.0" Round Culvert**<br>L= 75.0' RCP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 943.00' / 942.00' S= 0.0133 '/' Cc= 0.900<br>n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf |
| #2 | Device 1 | 943.00' | **0.500 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 947.50' | **12.0" Round Culvert** |

L= 10.0' RCP, square edge headwall, Ke= 0.500
Inlet / Outlet Invert= 947.50' / 947.45' S= 0.0050 '/' Cc= 0.900
n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.43 cfs @ 12.30 hrs HW=945.05' (Free Discharge)
└**1=Culvert** (Passes 0.43 cfs of 4.59 cfs potential flow)
  ├**2=Exfiltration** (Exfiltration Controls 0.43 cfs)
  └**3=Culvert** ( Controls 0.00 cfs)

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment DA-1P: Drainage Area to** Runoff Area=122,695 sf 93.28% Impervious Runoff Depth=2.52"
Tc=5.0 min CN=97 Runoff=11.65 cfs 0.591 af

**Subcatchment DA-2P: Drainage Area to** Runoff Area=74,052 sf 77.19% Impervious Runoff Depth=2.21"
Tc=5.0 min CN=94 Runoff=6.52 cfs 0.314 af

**Subcatchment DA-3P: Drainage Area To** Runoff Area=15,596 sf 17.66% Impervious Runoff Depth=1.33"
Tc=5.0 min CN=83 Runoff=0.88 cfs 0.040 af

**Subcatchment DA-4P: Drainage Area to** Runoff Area=91,386 sf 16.40% Impervious Runoff Depth=1.33"
Tc=15.0 min CN=83 Runoff=3.61 cfs 0.233 af

**Reach PT: PROPOSED TOTAL** Inflow=4.63 cfs 1.178 af
Outflow=4.63 cfs 1.178 af

**Reach TW: To Wetland** Inflow=4.25 cfs 1.139 af
Outflow=4.25 cfs 1.139 af

**Pond EV: East Vault** Peak Elev=945.28' Storage=8,852 cf Inflow=6.52 cfs 0.314 af
Outflow=0.21 cfs 0.314 af

**Pond WV: West Vault** Peak Elev=945.58' Storage=16,769 cf Inflow=11.65 cfs 0.591 af
Outflow=0.43 cfs 0.591 af

**Total Runoff Area = 6.973 ac Runoff Volume = 1.178 af Average Runoff Depth = 2.03"**
**37.66% Pervious = 2.626 ac 62.34% Impervious = 4.347 ac**

## Summary for Subcatchment DA-1P: Drainage Area to West Vault System

Runoff = 11.65 cfs @ 12.11 hrs, Volume= 0.591 af, Depth= 2.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.86"

| Area (sf) | CN | Description |
|---|---|---|
| 114,448 | 98 | Paved parking, HSG D |
| 8,247 | 80 | >75% Grass cover, Good, HSG D |
| 122,695 | 97 | Weighted Average |
| 8,247 | | 6.72% Pervious Area |
| 114,448 | | 93.28% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment DA-2P: Drainage Area to East Vault

Runoff = 6.52 cfs @ 12.11 hrs, Volume= 0.314 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.86"

| Area (sf) | CN | Description |
|---|---|---|
| 57,158 | 98 | Paved parking, HSG D |
| 16,894 | 80 | >75% Grass cover, Good, HSG D |
| 74,052 | 94 | Weighted Average |
| 16,894 | | 22.81% Pervious Area |
| 57,158 | | 77.19% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment DA-3P: Drainage Area To Street

Runoff = 0.88 cfs @ 12.12 hrs, Volume= 0.040 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.86"

| Area (sf) | CN | Description |
|---|---|---|
| 2,754 | 98 | Paved parking, HSG D |
| 12,842 | 80 | >75% Grass cover, Good, HSG D |
| 15,596 | 83 | Weighted Average |
| 12,842 | | 82.34% Pervious Area |
| 2,754 | | 17.66% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment DA-4P: Drainage Area to Wetlands

Runoff = 3.61 cfs @ 12.24 hrs, Volume= 0.233 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.86"

| Area (sf) | CN | Description |
|---|---|---|
| 14,988 | 98 | Paved parking, HSG D |
| 76,398 | 80 | >75% Grass cover, Good, HSG D |
| 91,386 | 83 | Weighted Average |
| 76,398 | | 83.60% Pervious Area |
| 14,988 | | 16.40% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.0 | | | | | **Direct Entry,** |

## Summary for Reach PT: PROPOSED TOTAL

Inflow Area = 6.973 ac, 62.34% Impervious, Inflow Depth = 2.03" for 2-Year event
Inflow = 4.63 cfs @ 12.23 hrs, Volume= 1.178 af
Outflow = 4.63 cfs @ 12.23 hrs, Volume= 1.178 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Reach TW: To Wetland

Inflow Area = 6.615 ac, 64.76% Impervious, Inflow Depth = 2.07" for 2-Year event
Inflow = 4.25 cfs @ 12.24 hrs, Volume= 1.139 af
Outflow = 4.25 cfs @ 12.24 hrs, Volume= 1.139 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Pond EV: East Vault

Inflow Area = 1.700 ac, 77.19% Impervious, Inflow Depth = 2.21" for 2-Year event
Inflow = 6.52 cfs @ 12.11 hrs, Volume= 0.314 af
Outflow = 0.21 cfs @ 12.00 hrs, Volume= 0.314 af, Atten= 97%, Lag= 0.0 min
Primary = 0.21 cfs @ 12.00 hrs, Volume= 0.314 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 945.28' @ 13.59 hrs Surf.Area= 18,423 sf Storage= 8,852 cf

Plug-Flow detention time= 420.3 min calculated for 0.314 af (100% of inflow)
Center-of-Mass det. time= 419.7 min ( 1,196.4 - 776.7 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1A | 944.00' | 5,387 cf | **20.00'W x 217.00'L x 5.50'H Field A**<br>23,870 cf Overall - 10,401 cf Embedded = 13,469 cf x 40.0% Voids |
| #2A | 944.50' | 10,401 cf | **CMP Round 54** x 33 Inside #1<br>Effective Size= 54.0"W x 54.0"H => 15.90 sf x 20.00'L = 318.1 cf<br>Overall Size= 54.0"W x 54.0"H x 20.00'L<br>Row Length Adjustment= -14.00' x 15.90 sf x 3 rows<br>18.00' Header x 15.90 sf x 2 = 572.6 cf Inside |
| #3 | 942.00' | 2,580 cf | **20.00'W x 215.00'L x 2.00'H Prismatoid**<br>8,600 cf Overall x 30.0% Voids |
| #4B | 944.00' | 6,031 cf | **53.75'W x 91.00'L x 5.50'H Field B**<br>26,902 cf Overall - 11,825 cf Embedded = 15,077 cf x 40.0% Voids |
| #5B | 944.50' | 11,825 cf | **CMP Round 54** x 32 Inside #4<br>Effective Size= 54.0"W x 54.0"H => 15.90 sf x 20.00'L = 318.1 cf<br>Overall Size= 54.0"W x 54.0"H x 20.00'L<br>32 Chambers in 8 Rows<br>51.75' Header x 15.90 sf x 2 = 1,646.1 cf Inside |
| #6 | 942.00' | 29 cf | **53.75'W x 91.00'L x 2.00'H Prismatoid**<br>9,783 cf Overall x 0.3% Voids |
| | | 36,254 cf | Total Available Storage |

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 942.00' | **12.0" Round Culvert**<br>L= 261.0' RCP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 942.00' / 941.00' S= 0.0038 '/' Cc= 0.900<br>n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf |
| #2 | Device 1 | 942.00' | **0.500 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 946.50' | **12.0" Round Culvert**<br>L= 8.0' RCP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 946.50' / 946.47' S= 0.0037 '/' Cc= 0.900<br>n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf |

**Primary OutFlow** Max=0.21 cfs @ 12.00 hrs HW=944.07' (Free Discharge)
└**1=Culvert** (Passes 0.21 cfs of 2.91 cfs potential flow)
  ├**2=Exfiltration** (Exfiltration Controls 0.21 cfs)
  └**3=Culvert** ( Controls 0.00 cfs)

## Summary for Pond WV: West Vault

Inflow Area = 2.817 ac, 93.28% Impervious, Inflow Depth = 2.52" for 2-Year event
Inflow = 11.65 cfs @ 12.11 hrs, Volume= 0.591 af
Outflow = 0.43 cfs @ 12.20 hrs, Volume= 0.591 af, Atten= 96%, Lag= 5.3 min
Primary = 0.43 cfs @ 12.20 hrs, Volume= 0.591 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 945.58' @ 13.54 hrs Surf.Area= 37,578 sf Storage= 16,769 cf

Plug-Flow detention time= 487.7 min calculated for 0.591 af (100% of inflow)

Center-of-Mass det. time= 487.4 min ( 1,248.0 - 760.6 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1A | 945.00' | 8,449 cf | **53.75'W x 151.00'L x 5.00'H Field A**<br>40,581 cf Overall - 19,459 cf Embedded = 21,122 cf x 40.0% Voids |
| #2A | 945.00' | 19,459 cf | **CMP Round 54** x 56 Inside #1<br>Effective Size= 54.0"W x 54.0"H => 15.90 sf x 20.00'L = 318.1 cf<br>Overall Size= 54.0"W x 54.0"H x 20.00'L<br>56 Chambers in 8 Rows<br>51.75' Header x 15.90 sf x 2 = 1,646.1 cf Inside |
| #3 | 943.00' | 4,870 cf | **53.75'W x 151.00'L x 2.00'H Prismatoid**<br>16,233 cf Overall x 30.0% Voids |
| #4B | 945.00' | 3,062 cf | **20.00'W x 122.50'L x 5.50'H Field B**<br>13,475 cf Overall - 5,821 cf Embedded = 7,654 cf x 40.0% Voids |
| #5B | 945.50' | 5,821 cf | **CMP Round 54** x 18 Inside #4<br>Effective Size= 54.0"W x 54.0"H => 15.90 sf x 20.00'L = 318.1 cf<br>Overall Size= 54.0"W x 54.0"H x 20.00'L<br>Row Length Adjustment= -4.00' x 15.90 sf x 3 rows<br>18.00' Header x 15.90 sf x 1 = 286.3 cf Inside |
| #6 | 943.00' | 1,470 cf | **20.00'W x 122.50'L x 2.00'H Prismatoid**<br>4,900 cf Overall x 30.0% Voids |
| #7C | 945.00' | 882 cf | **40.25'W x 16.00'L x 5.50'H Field C**<br>3,542 cf Overall - 1,336 cf Embedded = 2,206 cf x 40.0% Voids |
| #8C | 945.50' | 1,336 cf | **CMP Round 54** x 6 Inside #7<br>Effective Size= 54.0"W x 54.0"H => 15.90 sf x 20.00'L = 318.1 cf<br>Overall Size= 54.0"W x 54.0"H x 20.00'L<br>Row Length Adjustment= -6.00' x 15.90 sf x 6 rows |
| #9 | 943.00' | 386 cf | **16.00'W x 40.25'L x 2.00'H Prismatoid**<br>1,288 cf Overall x 30.0% Voids |
| #10D | 945.00' | 8,725 cf | **53.75'W x 131.00'L x 5.50'H Field D**<br>38,727 cf Overall - 16,914 cf Embedded = 21,813 cf x 40.0% Voids |
| #11D | 945.50' | 16,914 cf | **CMP Round 54** x 48 Inside #10<br>Effective Size= 54.0"W x 54.0"H => 15.90 sf x 20.00'L = 318.1 cf<br>Overall Size= 54.0"W x 54.0"H x 20.00'L<br>48 Chambers in 8 Rows<br>51.75' Header x 15.90 sf x 2 = 1,646.1 cf Inside |
| #12 | 943.00' | 4,870 cf | **53.75'W x 151.00'L x 2.00'H Prismatoid**<br>16,233 cf Overall x 30.0% Voids |
| | | 76,244 cf | Total Available Storage |

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard
Storage Group C created with Chamber Wizard
Storage Group D created with Chamber Wizard

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 943.00' | **12.0" Round Culvert**<br>L= 75.0' RCP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 943.00' / 942.00' S= 0.0133 '/' Cc= 0.900<br>n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf |
| #2 | Device 1 | 943.00' | **0.500 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 947.50' | **12.0" Round Culvert** |

L= 10.0' RCP, square edge headwall, Ke= 0.500
Inlet / Outlet Invert= 947.50' / 947.45' S= 0.0050 '/' Cc= 0.900
n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.43 cfs @ 12.20 hrs HW=945.14' (Free Discharge)
└─**1=Culvert** (Passes 0.43 cfs of 4.70 cfs potential flow)
  ├─**2=Exfiltration** (Exfiltration Controls 0.43 cfs)
  └─**3=Culvert** ( Controls 0.00 cfs)

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment DA-1P: Drainage Area to** Runoff Area=122,695 sf 93.28% Impervious Runoff Depth=3.91"
Tc=5.0 min CN=97 Runoff=17.64 cfs 0.918 af

**Subcatchment DA-2P: Drainage Area to** Runoff Area=74,052 sf 77.19% Impervious Runoff Depth=3.58"
Tc=5.0 min CN=94 Runoff=10.23 cfs 0.507 af

**Subcatchment DA-3P: Drainage Area To** Runoff Area=15,596 sf 17.66% Impervious Runoff Depth=2.51"
Tc=5.0 min CN=83 Runoff=1.64 cfs 0.075 af

**Subcatchment DA-4P: Drainage Area to** Runoff Area=91,386 sf 16.40% Impervious Runoff Depth=2.51"
Tc=15.0 min CN=83 Runoff=6.79 cfs 0.439 af

**Reach PT: PROPOSED TOTAL** Inflow=8.13 cfs 1.939 af
Outflow=8.13 cfs 1.939 af

**Reach TW: To Wetland** Inflow=7.44 cfs 1.864 af
Outflow=7.44 cfs 1.864 af

**Pond EV: East Vault** Peak Elev=946.21' Storage=15,455 cf Inflow=10.23 cfs 0.507 af
Outflow=0.21 cfs 0.507 af

**Pond WV: West Vault** Peak Elev=946.44' Storage=27,476 cf Inflow=17.64 cfs 0.918 af
Outflow=0.43 cfs 0.918 af

**Total Runoff Area = 6.973 ac Runoff Volume = 1.939 af Average Runoff Depth = 3.34"**
**37.66% Pervious = 2.626 ac 62.34% Impervious = 4.347 ac**

## Summary for Subcatchment DA-1P: Drainage Area to West Vault System

Runoff = 17.64 cfs @ 12.11 hrs, Volume= 0.918 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=4.26"

| Area (sf) | CN | Description |
|---|---|---|
| 114,448 | 98 | Paved parking, HSG D |
| 8,247 | 80 | >75% Grass cover, Good, HSG D |
| 122,695 | 97 | Weighted Average |
| 8,247 | | 6.72% Pervious Area |
| 114,448 | | 93.28% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment DA-2P: Drainage Area to East Vault

Runoff = 10.23 cfs @ 12.11 hrs, Volume= 0.507 af, Depth= 3.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=4.26"

| Area (sf) | CN | Description |
|---|---|---|
| 57,158 | 98 | Paved parking, HSG D |
| 16,894 | 80 | >75% Grass cover, Good, HSG D |
| 74,052 | 94 | Weighted Average |
| 16,894 | | 22.81% Pervious Area |
| 57,158 | | 77.19% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment DA-3P: Drainage Area To Street

Runoff = 1.64 cfs @ 12.12 hrs, Volume= 0.075 af, Depth= 2.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=4.26"

| Area (sf) | CN | Description |
|---|---|---|
| 2,754 | 98 | Paved parking, HSG D |
| 12,842 | 80 | >75% Grass cover, Good, HSG D |
| 15,596 | 83 | Weighted Average |
| 12,842 | | 82.34% Pervious Area |
| 2,754 | | 17.66% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment DA-4P: Drainage Area to Wetlands

Runoff = 6.79 cfs @ 12.24 hrs, Volume= 0.439 af, Depth= 2.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=4.26"

| Area (sf) | CN | Description |
|---|---|---|
| 14,988 | 98 | Paved parking, HSG D |
| 76,398 | 80 | >75% Grass cover, Good, HSG D |
| 91,386 | 83 | Weighted Average |
| 76,398 | | 83.60% Pervious Area |
| 14,988 | | 16.40% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.0 | | | | | **Direct Entry,** |

## Summary for Reach PT: PROPOSED TOTAL

Inflow Area = 6.973 ac, 62.34% Impervious, Inflow Depth = 3.34" for 10-Year event
Inflow = 8.13 cfs @ 12.22 hrs, Volume= 1.939 af
Outflow = 8.13 cfs @ 12.22 hrs, Volume= 1.939 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Reach TW: To Wetland

Inflow Area = 6.615 ac, 64.76% Impervious, Inflow Depth = 3.38" for 10-Year event
Inflow = 7.44 cfs @ 12.24 hrs, Volume= 1.864 af
Outflow = 7.44 cfs @ 12.24 hrs, Volume= 1.864 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Pond EV: East Vault

Inflow Area = 1.700 ac, 77.19% Impervious, Inflow Depth = 3.58" for 10-Year event
Inflow = 10.23 cfs @ 12.11 hrs, Volume= 0.507 af
Outflow = 0.21 cfs @ 11.75 hrs, Volume= 0.507 af, Atten= 98%, Lag= 0.0 min
Primary = 0.21 cfs @ 11.75 hrs, Volume= 0.507 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 946.21' @ 15.04 hrs Surf.Area= 18,423 sf Storage= 15,455 cf

Plug-Flow detention time= 697.6 min calculated for 0.507 af (100% of inflow)
Center-of-Mass det. time= 698.1 min ( 1,465.5 - 767.4 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1A | 944.00' | 5,387 cf | **20.00'W x 217.00'L x 5.50'H Field A**<br>23,870 cf Overall - 10,401 cf Embedded = 13,469 cf x 40.0% Voids |
| #2A | 944.50' | 10,401 cf | **CMP Round 54** x 33 Inside #1<br>Effective Size= 54.0"W x 54.0"H => 15.90 sf x 20.00'L = 318.1 cf<br>Overall Size= 54.0"W x 54.0"H x 20.00'L<br>Row Length Adjustment= -14.00' x 15.90 sf x 3 rows<br>18.00' Header x 15.90 sf x 2 = 572.6 cf Inside |
| #3 | 942.00' | 2,580 cf | **20.00'W x 215.00'L x 2.00'H Prismatoid**<br>8,600 cf Overall x 30.0% Voids |
| #4B | 944.00' | 6,031 cf | **53.75'W x 91.00'L x 5.50'H Field B**<br>26,902 cf Overall - 11,825 cf Embedded = 15,077 cf x 40.0% Voids |
| #5B | 944.50' | 11,825 cf | **CMP Round 54** x 32 Inside #4<br>Effective Size= 54.0"W x 54.0"H => 15.90 sf x 20.00'L = 318.1 cf<br>Overall Size= 54.0"W x 54.0"H x 20.00'L<br>32 Chambers in 8 Rows<br>51.75' Header x 15.90 sf x 2 = 1,646.1 cf Inside |
| #6 | 942.00' | 29 cf | **53.75'W x 91.00'L x 2.00'H Prismatoid**<br>9,783 cf Overall x 0.3% Voids |
| | | 36,254 cf | Total Available Storage |

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 942.00' | **12.0" Round Culvert**<br>L= 261.0' RCP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 942.00' / 941.00' S= 0.0038 '/' Cc= 0.900<br>n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf |
| #2 | Device 1 | 942.00' | **0.500 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 946.50' | **12.0" Round Culvert**<br>L= 8.0' RCP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 946.50' / 946.47' S= 0.0037 '/' Cc= 0.900<br>n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf |

**Primary OutFlow** Max=0.21 cfs @ 11.75 hrs HW=944.05' (Free Discharge)
└**1=Culvert** (Passes 0.21 cfs of 2.90 cfs potential flow)
  ├**2=Exfiltration** (Exfiltration Controls 0.21 cfs)
  └**3=Culvert** ( Controls 0.00 cfs)

## Summary for Pond WV: West Vault

Inflow Area = 2.817 ac, 93.28% Impervious, Inflow Depth = 3.91" for 10-Year event
Inflow = 17.64 cfs @ 12.11 hrs, Volume= 0.918 af
Outflow = 0.43 cfs @ 12.05 hrs, Volume= 0.918 af, Atten= 98%, Lag= 0.0 min
Primary = 0.43 cfs @ 12.05 hrs, Volume= 0.918 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 946.44' @ 14.19 hrs Surf.Area= 37,578 sf Storage= 27,476 cf

Plug-Flow detention time= 663.0 min calculated for 0.917 af (100% of inflow)

Center-of-Mass det. time= 664.1 min ( 1,417.2 - 753.1 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1A | 945.00' | 8,449 cf | **53.75'W x 151.00'L x 5.00'H Field A**<br>40,581 cf Overall - 19,459 cf Embedded = 21,122 cf x 40.0% Voids |
| #2A | 945.00' | 19,459 cf | **CMP Round 54** x 56 Inside #1<br>Effective Size= 54.0"W x 54.0"H => 15.90 sf x 20.00'L = 318.1 cf<br>Overall Size= 54.0"W x 54.0"H x 20.00'L<br>56 Chambers in 8 Rows<br>51.75' Header x 15.90 sf x 2 = 1,646.1 cf Inside |
| #3 | 943.00' | 4,870 cf | **53.75'W x 151.00'L x 2.00'H Prismatoid**<br>16,233 cf Overall x 30.0% Voids |
| #4B | 945.00' | 3,062 cf | **20.00'W x 122.50'L x 5.50'H Field B**<br>13,475 cf Overall - 5,821 cf Embedded = 7,654 cf x 40.0% Voids |
| #5B | 945.50' | 5,821 cf | **CMP Round 54** x 18 Inside #4<br>Effective Size= 54.0"W x 54.0"H => 15.90 sf x 20.00'L = 318.1 cf<br>Overall Size= 54.0"W x 54.0"H x 20.00'L<br>Row Length Adjustment= -4.00' x 15.90 sf x 3 rows<br>18.00' Header x 15.90 sf x 1 = 286.3 cf Inside |
| #6 | 943.00' | 1,470 cf | **20.00'W x 122.50'L x 2.00'H Prismatoid**<br>4,900 cf Overall x 30.0% Voids |
| #7C | 945.00' | 882 cf | **40.25'W x 16.00'L x 5.50'H Field C**<br>3,542 cf Overall - 1,336 cf Embedded = 2,206 cf x 40.0% Voids |
| #8C | 945.50' | 1,336 cf | **CMP Round 54** x 6 Inside #7<br>Effective Size= 54.0"W x 54.0"H => 15.90 sf x 20.00'L = 318.1 cf<br>Overall Size= 54.0"W x 54.0"H x 20.00'L<br>Row Length Adjustment= -6.00' x 15.90 sf x 6 rows |
| #9 | 943.00' | 386 cf | **16.00'W x 40.25'L x 2.00'H Prismatoid**<br>1,288 cf Overall x 30.0% Voids |
| #10D | 945.00' | 8,725 cf | **53.75'W x 131.00'L x 5.50'H Field D**<br>38,727 cf Overall - 16,914 cf Embedded = 21,813 cf x 40.0% Voids |
| #11D | 945.50' | 16,914 cf | **CMP Round 54** x 48 Inside #10<br>Effective Size= 54.0"W x 54.0"H => 15.90 sf x 20.00'L = 318.1 cf<br>Overall Size= 54.0"W x 54.0"H x 20.00'L<br>48 Chambers in 8 Rows<br>51.75' Header x 15.90 sf x 2 = 1,646.1 cf Inside |
| #12 | 943.00' | 4,870 cf | **53.75'W x 151.00'L x 2.00'H Prismatoid**<br>16,233 cf Overall x 30.0% Voids |
| | | 76,244 cf | Total Available Storage |

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard
Storage Group C created with Chamber Wizard
Storage Group D created with Chamber Wizard

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 943.00' | **12.0" Round Culvert**<br>L= 75.0' RCP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 943.00' / 942.00' S= 0.0133 '/' Cc= 0.900<br>n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf |
| #2 | Device 1 | 943.00' | **0.500 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 947.50' | **12.0" Round Culvert** |

L= 10.0' RCP, square edge headwall, Ke= 0.500
Inlet / Outlet Invert= 947.50' / 947.45' S= 0.0050 '/' Cc= 0.900
n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.43 cfs @ 12.05 hrs HW=945.13' (Free Discharge)
└─**1=Culvert** (Passes 0.43 cfs of 4.68 cfs potential flow)
  ├─**2=Exfiltration** (Exfiltration Controls 0.43 cfs)
  └─**3=Culvert** ( Controls 0.00 cfs)

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment DA-1P: Drainage Area to** Runoff Area=122,695 sf 93.28% Impervious Runoff Depth=6.96"
Tc=5.0 min CN=97 Runoff=30.62 cfs 1.634 af

**Subcatchment DA-2P: Drainage Area to** Runoff Area=74,052 sf 77.19% Impervious Runoff Depth=6.61"
Tc=5.0 min CN=94 Runoff=18.18 cfs 0.936 af

**Subcatchment DA-3P: Drainage Area To** Runoff Area=15,596 sf 17.66% Impervious Runoff Depth=5.33"
Tc=5.0 min CN=83 Runoff=3.36 cfs 0.159 af

**Subcatchment DA-4P: Drainage Area to** Runoff Area=91,386 sf 16.40% Impervious Runoff Depth=5.33"
Tc=15.0 min CN=83 Runoff=14.05 cfs 0.932 af

**Reach PT: PROPOSED TOTAL** Inflow=16.90 cfs 3.660 af
Outflow=16.90 cfs 3.660 af

**Reach TW: To Wetland** Inflow=15.56 cfs 3.501 af
Outflow=15.56 cfs 3.501 af

**Pond EV: East Vault** Peak Elev=947.41' Storage=24,311 cf Inflow=18.18 cfs 0.936 af
Outflow=1.99 cfs 0.936 af

**Pond WV: West Vault** Peak Elev=947.99' Storage=49,879 cf Inflow=30.62 cfs 1.634 af
Outflow=1.07 cfs 1.634 af

**Total Runoff Area = 6.973 ac Runoff Volume = 3.661 af Average Runoff Depth = 6.30"**
**37.66% Pervious = 2.626 ac 62.34% Impervious = 4.347 ac**

## Summary for Subcatchment DA-1P: Drainage Area to West Vault System

Runoff = 30.62 cfs @ 12.11 hrs, Volume= 1.634 af, Depth= 6.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=7.32"

| Area (sf) | CN | Description |
|---|---|---|
| 114,448 | 98 | Paved parking, HSG D |
| 8,247 | 80 | >75% Grass cover, Good, HSG D |
| 122,695 | 97 | Weighted Average |
| 8,247 | | 6.72% Pervious Area |
| 114,448 | | 93.28% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment DA-2P: Drainage Area to East Vault

Runoff = 18.18 cfs @ 12.11 hrs, Volume= 0.936 af, Depth= 6.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=7.32"

| Area (sf) | CN | Description |
|---|---|---|
| 57,158 | 98 | Paved parking, HSG D |
| 16,894 | 80 | >75% Grass cover, Good, HSG D |
| 74,052 | 94 | Weighted Average |
| 16,894 | | 22.81% Pervious Area |
| 57,158 | | 77.19% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment DA-3P: Drainage Area To Street

Runoff = 3.36 cfs @ 12.11 hrs, Volume= 0.159 af, Depth= 5.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=7.32"

| Area (sf) | CN | Description |
|---|---|---|
| 2,754 | 98 | Paved parking, HSG D |
| 12,842 | 80 | >75% Grass cover, Good, HSG D |
| 15,596 | 83 | Weighted Average |
| 12,842 | | 82.34% Pervious Area |
| 2,754 | | 17.66% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment DA-4P: Drainage Area to Wetlands

Runoff = 14.05 cfs @ 12.23 hrs, Volume= 0.932 af, Depth= 5.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=7.32"

| Area (sf) | CN | Description |
|---|---|---|
| 14,988 | 98 | Paved parking, HSG D |
| 76,398 | 80 | >75% Grass cover, Good, HSG D |
| 91,386 | 83 | Weighted Average |
| 76,398 | | 83.60% Pervious Area |
| 14,988 | | 16.40% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.0 | | | | | **Direct Entry,** |

## Summary for Reach PT: PROPOSED TOTAL

Inflow Area = 6.973 ac, 62.34% Impervious, Inflow Depth = 6.30" for 100-Year event
Inflow = 16.90 cfs @ 12.23 hrs, Volume= 3.660 af
Outflow = 16.90 cfs @ 12.23 hrs, Volume= 3.660 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Reach TW: To Wetland

Inflow Area = 6.615 ac, 64.76% Impervious, Inflow Depth = 6.35" for 100-Year event
Inflow = 15.56 cfs @ 12.24 hrs, Volume= 3.501 af
Outflow = 15.56 cfs @ 12.24 hrs, Volume= 3.501 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Pond EV: East Vault

Inflow Area = 1.700 ac, 77.19% Impervious, Inflow Depth = 6.61" for 100-Year event
Inflow = 18.18 cfs @ 12.11 hrs, Volume= 0.936 af
Outflow = 1.99 cfs @ 12.57 hrs, Volume= 0.936 af, Atten= 89%, Lag= 27.4 min
Primary = 1.99 cfs @ 12.57 hrs, Volume= 0.936 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 947.41' @ 12.57 hrs Surf.Area= 18,423 sf Storage= 24,311 cf

Plug-Flow detention time= 610.0 min calculated for 0.936 af (100% of inflow)
Center-of-Mass det. time= 609.6 min ( 1,366.0 - 756.4 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1A | 944.00' | 5,387 cf | **20.00'W x 217.00'L x 5.50'H Field A**<br>23,870 cf Overall - 10,401 cf Embedded = 13,469 cf x 40.0% Voids |
| #2A | 944.50' | 10,401 cf | **CMP Round 54** x 33 Inside #1<br>Effective Size= 54.0"W x 54.0"H => 15.90 sf x 20.00'L = 318.1 cf<br>Overall Size= 54.0"W x 54.0"H x 20.00'L<br>Row Length Adjustment= -14.00' x 15.90 sf x 3 rows<br>18.00' Header x 15.90 sf x 2 = 572.6 cf Inside |
| #3 | 942.00' | 2,580 cf | **20.00'W x 215.00'L x 2.00'H Prismatoid**<br>8,600 cf Overall x 30.0% Voids |
| #4B | 944.00' | 6,031 cf | **53.75'W x 91.00'L x 5.50'H Field B**<br>26,902 cf Overall - 11,825 cf Embedded = 15,077 cf x 40.0% Voids |
| #5B | 944.50' | 11,825 cf | **CMP Round 54** x 32 Inside #4<br>Effective Size= 54.0"W x 54.0"H => 15.90 sf x 20.00'L = 318.1 cf<br>Overall Size= 54.0"W x 54.0"H x 20.00'L<br>32 Chambers in 8 Rows<br>51.75' Header x 15.90 sf x 2 = 1,646.1 cf Inside |
| #6 | 942.00' | 29 cf | **53.75'W x 91.00'L x 2.00'H Prismatoid**<br>9,783 cf Overall x 0.3% Voids |
| | | 36,254 cf | Total Available Storage |

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 942.00' | **12.0" Round Culvert**<br>L= 261.0' RCP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 942.00' / 941.00' S= 0.0038 '/' Cc= 0.900<br>n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf |
| #2 | Device 1 | 942.00' | **0.500 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 946.50' | **12.0" Round Culvert**<br>L= 8.0' RCP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 946.50' / 946.47' S= 0.0037 '/' Cc= 0.900<br>n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf |

**Primary OutFlow** Max=1.99 cfs @ 12.57 hrs HW=947.41' (Free Discharge)
└**1=Culvert** (Passes 1.99 cfs of 4.71 cfs potential flow)
  ├**2=Exfiltration** (Exfiltration Controls 0.21 cfs)
  └**3=Culvert** (Barrel Controls 1.77 cfs @ 3.12 fps)

## Summary for Pond WV: West Vault

Inflow Area = 2.817 ac, 93.28% Impervious, Inflow Depth = 6.96" for 100-Year event
Inflow = 30.62 cfs @ 12.11 hrs, Volume= 1.634 af
Outflow = 1.07 cfs @ 13.56 hrs, Volume= 1.634 af, Atten= 97%, Lag= 86.6 min
Primary = 1.07 cfs @ 13.56 hrs, Volume= 1.634 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 947.99' @ 13.56 hrs Surf.Area= 37,578 sf Storage= 49,879 cf

Plug-Flow detention time= 928.4 min calculated for 1.632 af (100% of inflow)

Center-of-Mass det. time= 929.4 min ( 1,674.1 - 744.7 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1A | 945.00' | 8,449 cf | **53.75'W x 151.00'L x 5.00'H Field A**<br>40,581 cf Overall - 19,459 cf Embedded = 21,122 cf x 40.0% Voids |
| #2A | 945.00' | 19,459 cf | **CMP Round 54** x 56 Inside #1<br>Effective Size= 54.0"W x 54.0"H => 15.90 sf x 20.00'L = 318.1 cf<br>Overall Size= 54.0"W x 54.0"H x 20.00'L<br>56 Chambers in 8 Rows<br>51.75' Header x 15.90 sf x 2 = 1,646.1 cf Inside |
| #3 | 943.00' | 4,870 cf | **53.75'W x 151.00'L x 2.00'H Prismatoid**<br>16,233 cf Overall x 30.0% Voids |
| #4B | 945.00' | 3,062 cf | **20.00'W x 122.50'L x 5.50'H Field B**<br>13,475 cf Overall - 5,821 cf Embedded = 7,654 cf x 40.0% Voids |
| #5B | 945.50' | 5,821 cf | **CMP Round 54** x 18 Inside #4<br>Effective Size= 54.0"W x 54.0"H => 15.90 sf x 20.00'L = 318.1 cf<br>Overall Size= 54.0"W x 54.0"H x 20.00'L<br>Row Length Adjustment= -4.00' x 15.90 sf x 3 rows<br>18.00' Header x 15.90 sf x 1 = 286.3 cf Inside |
| #6 | 943.00' | 1,470 cf | **20.00'W x 122.50'L x 2.00'H Prismatoid**<br>4,900 cf Overall x 30.0% Voids |
| #7C | 945.00' | 882 cf | **40.25'W x 16.00'L x 5.50'H Field C**<br>3,542 cf Overall - 1,336 cf Embedded = 2,206 cf x 40.0% Voids |
| #8C | 945.50' | 1,336 cf | **CMP Round 54** x 6 Inside #7<br>Effective Size= 54.0"W x 54.0"H => 15.90 sf x 20.00'L = 318.1 cf<br>Overall Size= 54.0"W x 54.0"H x 20.00'L<br>Row Length Adjustment= -6.00' x 15.90 sf x 6 rows |
| #9 | 943.00' | 386 cf | **16.00'W x 40.25'L x 2.00'H Prismatoid**<br>1,288 cf Overall x 30.0% Voids |
| #10D | 945.00' | 8,725 cf | **53.75'W x 131.00'L x 5.50'H Field D**<br>38,727 cf Overall - 16,914 cf Embedded = 21,813 cf x 40.0% Voids |
| #11D | 945.50' | 16,914 cf | **CMP Round 54** x 48 Inside #10<br>Effective Size= 54.0"W x 54.0"H => 15.90 sf x 20.00'L = 318.1 cf<br>Overall Size= 54.0"W x 54.0"H x 20.00'L<br>48 Chambers in 8 Rows<br>51.75' Header x 15.90 sf x 2 = 1,646.1 cf Inside |
| #12 | 943.00' | 4,870 cf | **53.75'W x 151.00'L x 2.00'H Prismatoid**<br>16,233 cf Overall x 30.0% Voids |
| | | 76,244 cf | Total Available Storage |

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard
Storage Group C created with Chamber Wizard
Storage Group D created with Chamber Wizard

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 943.00' | **12.0" Round Culvert**<br>L= 75.0' RCP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 943.00' / 942.00' S= 0.0133 '/' Cc= 0.900<br>n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf |
| #2 | Device 1 | 943.00' | **0.500 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 947.50' | **12.0" Round Culvert** |

L= 10.0' RCP, square edge headwall, Ke= 0.500
Inlet / Outlet Invert= 947.50' / 947.45' S= 0.0050 '/' Cc= 0.900
n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf

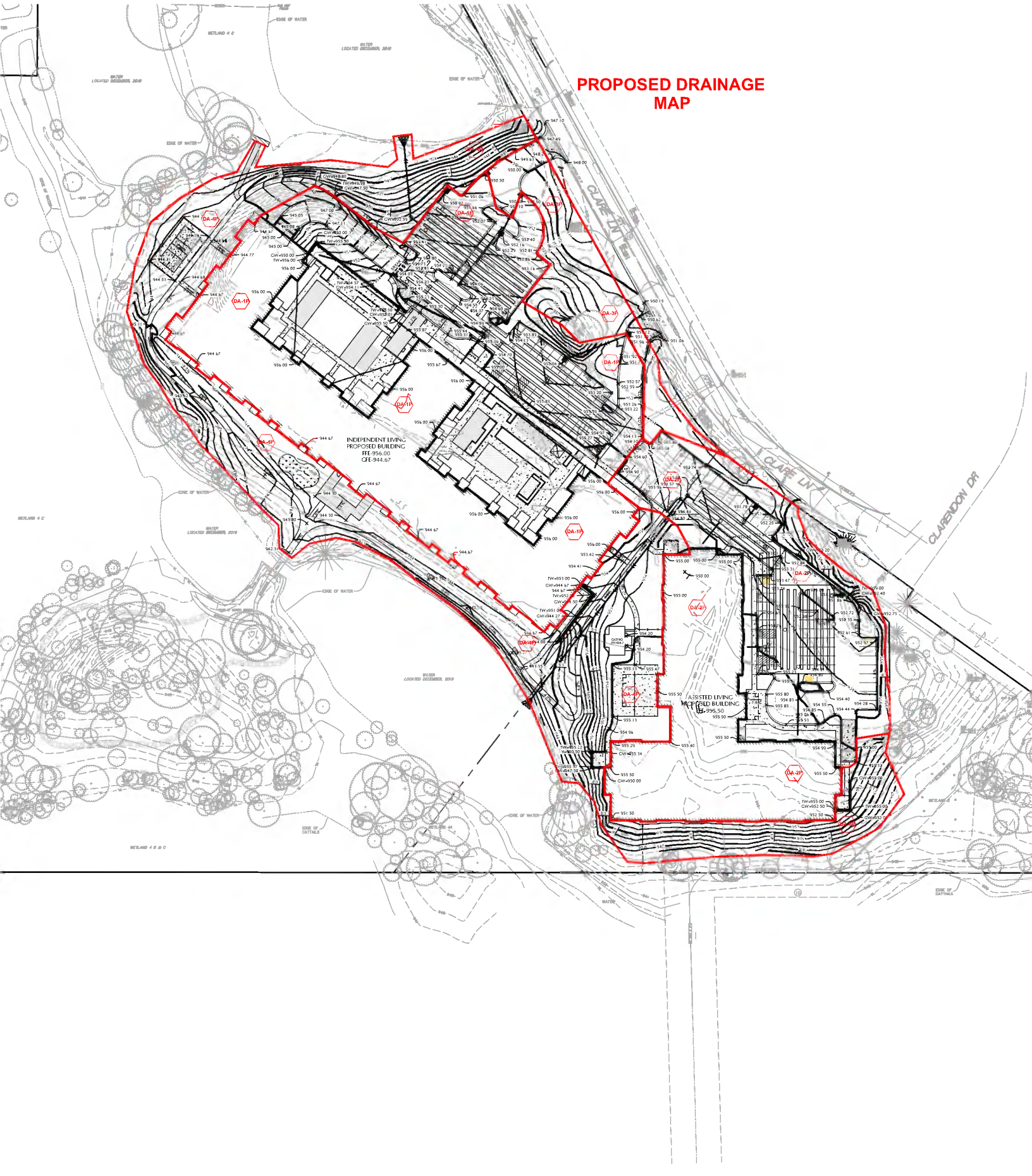
**Primary OutFlow** Max=1.07 cfs @ 13.56 hrs HW=947.99' (Free Discharge)
└─**1=Culvert** (Passes 1.07 cfs of 7.17 cfs potential flow)
  ├─**2=Exfiltration** (Exfiltration Controls 0.43 cfs)
  └─**3=Culvert** (Barrel Controls 0.63 cfs @ 2.41 fps)

## Figures

Existing Drainage Exhibit
Proposed Drainage Exhibit
West Vault Storage Data
East Vault Storage Data
Mids Existing
Mids Proposed

# EXISTING DRAINAGE MAP

# PROPOSED DRAINAGE MAP



## Stage-Area-Storage for Pond WV: West Vault

| Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet) | Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet) |
|---|---|---|---|---|---|
| 943.00 | 19,327 | 0 | 944.06 | 19,327 | 6,146 |
| 943.02 | 19,327 | 116 | 944.08 | 19,327 | 6,262 |
| 943.04 | 19,327 | 232 | 944.10 | 19,327 | 6,378 |
| 943.06 | 19,327 | 348 | 944.12 | 19,327 | 6,494 |
| 943.08 | 19,327 | 464 | 944.14 | 19,327 | 6,610 |
| 943.10 | 19,327 | 580 | 944.16 | 19,327 | 6,726 |
| 943.12 | 19,327 | 696 | 944.18 | 19,327 | 6,842 |
| 943.14 | 19,327 | 812 | 944.20 | 19,327 | 6,958 |
| 943.16 | 19,327 | 928 | 944.22 | 19,327 | 7,073 |
| 943.18 | 19,327 | 1,044 | 944.24 | 19,327 | 7,189 |
| 943.20 | 19,327 | 1,160 | 944.26 | 19,327 | 7,305 |
| 943.22 | 19,327 | 1,276 | 944.28 | 19,327 | 7,421 |
| 943.24 | 19,327 | 1,392 | 944.30 | 19,327 | 7,537 |
| 943.26 | 19,327 | 1,507 | 944.32 | 19,327 | 7,653 |
| 943.28 | 19,327 | 1,623 | 944.34 | 19,327 | 7,769 |
| 943.30 | 19,327 | 1,739 | 944.36 | 19,327 | 7,885 |
| 943.32 | 19,327 | 1,855 | 944.38 | 19,327 | 8,001 |
| 943.34 | 19,327 | 1,971 | 944.40 | 19,327 | 8,117 |
| 943.36 | 19,327 | 2,087 | 944.42 | 19,327 | 8,233 |
| 943.38 | 19,327 | 2,203 | 944.44 | 19,327 | 8,349 |
| 943.40 | 19,327 | 2,319 | 944.46 | 19,327 | 8,465 |
| 943.42 | 19,327 | 2,435 | 944.48 | 19,327 | 8,581 |
| 943.44 | 19,327 | 2,551 | 944.50 | 19,327 | 8,697 |
| 943.46 | 19,327 | 2,667 | 944.52 | 19,327 | 8,813 |
| 943.48 | 19,327 | 2,783 | 944.54 | 19,327 | 8,929 |
| 943.50 | 19,327 | 2,899 | 944.56 | 19,327 | 9,045 |
| 943.52 | 19,327 | 3,015 | 944.58 | 19,327 | 9,161 |
| 943.54 | 19,327 | 3,131 | 944.60 | 19,327 | 9,277 |
| 943.56 | 19,327 | 3,247 | 944.62 | 19,327 | 9,393 |
| 943.58 | 19,327 | 3,363 | 944.64 | 19,327 | 9,509 |
| 943.60 | 19,327 | 3,479 | 944.66 | 19,327 | 9,625 |
| 943.62 | 19,327 | 3,595 | 944.68 | 19,327 | 9,741 |
| 943.64 | 19,327 | 3,711 | 944.70 | 19,327 | 9,857 |
| 943.66 | 19,327 | 3,827 | 944.72 | 19,327 | 9,972 |
| 943.68 | 19,327 | 3,943 | 944.74 | 19,327 | 10,088 |
| 943.70 | 19,327 | 4,059 | 944.76 | 19,327 | 10,204 |
| 943.72 | 19,327 | 4,175 | 944.78 | 19,327 | 10,320 |
| 943.74 | 19,327 | 4,290 | 944.80 | 19,327 | 10,436 |
| 943.76 | 19,327 | 4,406 | 944.82 | 19,327 | 10,552 |
| 943.78 | 19,327 | 4,522 | 944.84 | 19,327 | 10,668 |
| 943.80 | 19,327 | 4,638 | 944.86 | 19,327 | 10,784 |
| 943.82 | 19,327 | 4,754 | 944.88 | 19,327 | 10,900 |
| 943.84 | 19,327 | 4,870 | 944.90 | 19,327 | 11,016 |
| 943.86 | 19,327 | 4,986 | 944.92 | 19,327 | 11,132 |
| 943.88 | 19,327 | 5,102 | 944.94 | 19,327 | 11,248 |
| 943.90 | 19,327 | 5,218 | 944.96 | 19,327 | 11,364 |
| 943.92 | 19,327 | 5,334 | 944.98 | 19,327 | 11,480 |
| 943.94 | 19,327 | 5,450 | 945.00 | **37,578** | 11,596 |
| 943.96 | 19,327 | 5,566 | 945.02 | 37,578 | 11,745 |
| 943.98 | 19,327 | 5,682 | 945.04 | 37,578 | 11,900 |
| 944.00 | 19,327 | 5,798 | 945.06 | 37,578 | 12,064 |
| 944.02 | 19,327 | 5,914 | 945.08 | 37,578 | 12,226 |
| 944.04 | 19,327 | 6,030 | 945.10 | 37,578 | 12,391 |

42,711 SF - 15,955 SF = 26,745 SF

## Stage-Area-Storage for Pond WV: West Vault (continued)

| Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet) |
|---|---|---|
| 945.12 | 37,578 | 12,557 |
| 945.14 | 37,578 | 12,726 |
| 945.16 | 37,578 | 12,895 |
| 945.18 | 37,578 | 13,067 |
| 945.20 | 37,578 | 13,239 |
| 945.22 | 37,578 | 13,413 |
| 945.24 | 37,578 | 13,588 |
| 945.26 | 37,578 | 13,764 |
| 945.28 | 37,578 | 13,942 |
| 945.30 | 37,578 | 14,120 |
| 945.32 | 37,578 | 14,300 |
| 945.34 | 37,578 | 14,480 |
| 945.36 | 37,578 | 14,662 |
| 945.38 | 37,578 | 14,844 |
| 945.40 | 37,578 | 15,027 |
| 945.42 | 37,578 | 15,211 |
| 945.44 | 37,578 | 15,396 |
| 945.46 | 37,578 | 15,582 |
| 945.48 | 37,578 | 15,768 |
| 945.50 | 37,578 | 15,955 |
| 945.52 | 37,578 | 16,147 |
| 945.54 | 37,578 | 16,346 |
| 945.56 | 37,578 | 16,559 |
| 945.58 | 37,578 | 16,768 |
| 945.60 | 37,578 | 16,982 |
| 945.62 | 37,578 | 17,199 |
| 945.64 | 37,578 | 17,418 |
| 945.66 | 37,578 | 17,640 |
| 945.68 | 37,578 | 17,864 |
| 945.70 | 37,578 | 18,091 |
| 945.72 | 37,578 | 18,319 |
| 945.74 | 37,578 | 18,550 |
| 945.76 | 37,578 | 18,783 |
| 945.78 | 37,578 | 19,017 |
| 945.80 | 37,578 | 19,254 |
| 945.82 | 37,578 | 19,492 |
| 945.84 | 37,578 | 19,732 |
| 945.86 | 37,578 | 19,973 |
| 945.88 | 37,578 | 20,216 |
| 945.90 | 37,578 | 20,461 |
| 945.92 | 37,578 | 20,707 |
| 945.94 | 37,578 | 20,955 |
| 945.96 | 37,578 | 21,204 |
| 945.98 | 37,578 | 21,454 |
| 946.00 | 37,578 | 21,706 |
| 946.02 | 37,578 | 21,959 |
| 946.04 | 37,578 | 22,213 |
| 946.06 | 37,578 | 22,468 |
| 946.08 | 37,578 | 22,725 |
| 946.10 | 37,578 | 22,983 |
| 946.12 | 37,578 | 23,242 |
| 946.14 | 37,578 | 23,502 |
| 946.16 | 37,578 | 23,763 |
| 946.18 | 37,578 | 24,025 |
| 946.20 | 37,578 | 24,288 |
| 946.22 | 37,578 | 24,552 |
| 946.24 | 37,578 | 24,817 |
| 946.26 | 37,578 | 25,083 |
| 946.28 | 37,578 | 25,351 |
| 946.30 | 37,578 | 25,618 |
| 946.32 | 37,578 | 25,887 |
| 946.34 | 37,578 | 26,157 |
| 946.36 | 37,578 | 26,428 |
| 946.38 | 37,578 | 26,699 |
| 946.40 | 37,578 | 26,971 |
| 946.42 | 37,578 | 27,244 |
| 946.44 | 37,578 | 27,518 |
| 946.46 | 37,578 | 27,792 |
| 946.48 | 37,578 | 28,067 |
| 946.50 | 37,578 | 28,343 |
| 946.52 | 37,578 | 28,620 |
| 946.54 | 37,578 | 28,897 |
| 946.56 | 37,578 | 29,175 |
| 946.58 | 37,578 | 29,454 |
| 946.60 | 37,578 | 29,733 |
| 946.62 | 37,578 | 30,013 |
| 946.64 | 37,578 | 30,293 |
| 946.66 | 37,578 | 30,574 |
| 946.68 | 37,578 | 30,856 |
| 946.70 | 37,578 | 31,138 |
| 946.72 | 37,578 | 31,420 |
| 946.74 | 37,578 | 31,704 |
| 946.76 | 37,578 | 31,987 |
| 946.78 | 37,578 | 32,271 |
| 946.80 | 37,578 | 32,556 |
| 946.82 | 37,578 | 32,841 |
| 946.84 | 37,578 | 33,126 |
| 946.86 | 37,578 | 33,412 |
| 946.88 | 37,578 | 33,699 |
| 946.90 | 37,578 | 33,986 |
| 946.92 | 37,578 | 34,273 |
| 946.94 | 37,578 | 34,560 |
| 946.96 | 37,578 | 34,848 |
| 946.98 | 37,578 | 35,136 |
| 947.00 | 37,578 | 35,425 |
| 947.02 | 37,578 | 35,714 |
| 947.04 | 37,578 | 36,003 |
| 947.06 | 37,578 | 36,292 |
| 947.08 | 37,578 | 36,582 |
| 947.10 | 37,578 | 36,872 |
| 947.12 | 37,578 | 37,163 |
| 947.14 | 37,578 | 37,453 |
| 947.16 | 37,578 | 37,744 |
| 947.18 | 37,578 | 38,035 |
| 947.20 | 37,578 | 38,326 |
| 947.22 | 37,578 | 38,618 |

## Stage-Area-Storage for Pond WV: West Vault (continued)

| Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet) |
|---|---|---|
| 947.24 | 37,578 | 38,909 |
| 947.26 | 37,578 | 39,201 |
| 947.28 | 37,578 | 39,493 |
| 947.30 | 37,578 | 39,785 |
| 947.32 | 37,578 | 40,077 |
| 947.34 | 37,578 | 40,369 |
| 947.36 | 37,578 | 40,662 |
| 947.38 | 37,578 | 40,954 |
| 947.40 | 37,578 | 41,247 |
| 947.42 | 37,578 | 41,540 |
| 947.44 | 37,578 | 41,833 |
| 947.46 | 37,578 | 42,125 |
| 947.48 | 37,578 | 42,418 |
| 947.50 | 37,578 | 42,711 |
| 947.52 | 37,578 | 43,004 |
| 947.54 | 37,578 | 43,297 |
| 947.56 | 37,578 | 43,590 |
| 947.58 | 37,578 | 43,883 |
| 947.60 | 37,578 | 44,175 |
| 947.62 | 37,578 | 44,468 |
| 947.64 | 37,578 | 44,761 |
| 947.66 | 37,578 | 45,054 |
| 947.68 | 37,578 | 45,346 |
| 947.70 | 37,578 | 45,639 |
| 947.72 | 37,578 | 45,931 |
| 947.74 | 37,578 | 46,224 |
| 947.76 | 37,578 | 46,516 |
| 947.78 | 37,578 | 46,808 |
| 947.80 | 37,578 | 47,100 |
| 947.82 | 37,578 | 47,391 |
| 947.84 | 37,578 | 47,683 |
| 947.86 | 37,578 | 47,974 |
| 947.88 | 37,578 | 48,265 |
| 947.90 | 37,578 | 48,556 |
| 947.92 | 37,578 | 48,847 |
| 947.94 | 37,578 | 49,137 |
| 947.96 | 37,578 | 49,428 |
| 947.98 | 37,578 | 49,717 |
| 948.00 | 37,578 | 50,007 |
| 948.02 | 37,578 | 50,297 |
| 948.04 | 37,578 | 50,586 |
| 948.06 | 37,578 | 50,874 |
| 948.08 | 37,578 | 51,163 |
| 948.10 | 37,578 | 51,451 |
| 948.12 | 37,578 | 51,739 |
| 948.14 | 37,578 | 52,026 |
| 948.16 | 37,578 | 52,313 |
| 948.18 | 37,578 | 52,600 |
| 948.20 | 37,578 | 52,886 |
| 948.22 | 37,578 | 53,172 |
| 948.24 | 37,578 | 53,457 |
| 948.26 | 37,578 | 53,742 |
| 948.28 | 37,578 | 54,026 |
| 948.30 | 37,578 | 54,310 |
| 948.32 | 37,578 | 54,594 |
| 948.34 | 37,578 | 54,877 |
| 948.36 | 37,578 | 55,159 |
| 948.38 | 37,578 | 55,441 |
| 948.40 | 37,578 | 55,722 |
| 948.42 | 37,578 | 56,003 |
| 948.44 | 37,578 | 56,283 |
| 948.46 | 37,578 | 56,563 |
| 948.48 | 37,578 | 56,842 |
| 948.50 | 37,578 | 57,120 |
| 948.52 | 37,578 | 57,398 |
| 948.54 | 37,578 | 57,675 |
| 948.56 | 37,578 | 57,951 |
| 948.58 | 37,578 | 58,227 |
| 948.60 | 37,578 | 58,501 |
| 948.62 | 37,578 | 58,776 |
| 948.64 | 37,578 | 59,049 |
| 948.66 | 37,578 | 59,322 |
| 948.68 | 37,578 | 59,593 |
| 948.70 | 37,578 | 59,865 |
| 948.72 | 37,578 | 60,135 |
| 948.74 | 37,578 | 60,404 |
| 948.76 | 37,578 | 60,673 |
| 948.78 | 37,578 | 60,940 |
| 948.80 | 37,578 | 61,207 |
| 948.82 | 37,578 | 61,472 |
| 948.84 | 37,578 | 61,737 |
| 948.86 | 37,578 | 62,001 |
| 948.88 | 37,578 | 62,264 |
| 948.90 | 37,578 | 62,525 |
| 948.92 | 37,578 | 62,786 |
| 948.94 | 37,578 | 63,046 |
| 948.96 | 37,578 | 63,304 |
| 948.98 | 37,578 | 63,561 |
| 949.00 | 37,578 | 63,817 |
| 949.02 | 37,578 | 64,072 |
| 949.04 | 37,578 | 64,326 |
| 949.06 | 37,578 | 64,578 |
| 949.08 | 37,578 | 64,829 |
| 949.10 | 37,578 | 65,079 |
| 949.12 | 37,578 | 65,327 |
| 949.14 | 37,578 | 65,574 |
| 949.16 | 37,578 | 65,820 |
| 949.18 | 37,578 | 66,063 |
| 949.20 | 37,578 | 66,306 |
| 949.22 | 37,578 | 66,546 |
| 949.24 | 37,578 | 66,785 |
| 949.26 | 37,578 | 67,022 |
| 949.28 | 37,578 | 67,258 |
| 949.30 | 37,578 | 67,491 |
| 949.32 | 37,578 | 67,723 |
| 949.34 | 37,578 | 67,952 |

## Stage-Area-Storage for Pond WV: West Vault (continued)

| Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet) |
|---|---|---|
| 949.36 | 37,578 | 68,179 |
| 949.38 | 37,578 | 68,404 |
| 949.40 | 37,578 | 68,626 |
| 949.42 | 37,578 | 68,846 |
| 949.44 | 37,578 | 69,063 |
| 949.46 | 37,578 | 69,276 |
| 949.48 | 37,578 | 69,484 |
| 949.50 | 37,578 | 69,689 |
| 949.52 | 37,578 | 69,886 |
| 949.54 | 37,578 | 70,082 |
| 949.56 | 37,578 | 70,277 |
| 949.58 | 37,578 | 70,471 |
| 949.60 | 37,578 | 70,665 |
| 949.62 | 37,578 | 70,857 |
| 949.64 | 37,578 | 71,047 |
| 949.66 | 37,578 | 71,237 |
| 949.68 | 37,578 | 71,426 |
| 949.70 | 37,578 | 71,613 |
| 949.72 | 37,578 | 71,799 |
| 949.74 | 37,578 | 71,984 |
| 949.76 | 37,578 | 72,168 |
| 949.78 | 37,578 | 72,350 |
| 949.80 | 37,578 | 72,530 |
| 949.82 | 37,578 | 72,709 |
| 949.84 | 37,578 | 72,886 |
| 949.86 | 37,578 | 73,061 |
| 949.88 | 37,578 | 73,235 |
| 949.90 | 37,578 | 73,406 |
| 949.92 | 37,578 | 73,575 |
| 949.94 | 37,578 | 73,741 |
| 949.96 | 37,578 | 73,904 |
| 949.98 | 37,578 | 74,061 |
| 950.00 | 37,578 | 74,217 |
| 950.02 | 37,578 | 74,298 |
| 950.04 | 37,578 | 74,379 |
| 950.06 | 37,578 | 74,460 |
| 950.08 | 37,578 | 74,541 |
| 950.10 | 37,578 | 74,622 |
| 950.12 | 37,578 | 74,703 |
| 950.14 | 37,578 | 74,785 |
| 950.16 | 37,578 | 74,866 |
| 950.18 | 37,578 | 74,947 |
| 950.20 | 37,578 | 75,028 |
| 950.22 | 37,578 | 75,109 |
| 950.24 | 37,578 | 75,190 |
| 950.26 | 37,578 | 75,271 |
| 950.28 | 37,578 | 75,352 |
| 950.30 | 37,578 | 75,433 |
| 950.32 | 37,578 | 75,514 |
| 950.34 | 37,578 | 75,595 |
| 950.36 | 37,578 | 75,676 |
| 950.38 | 37,578 | 75,758 |
| 950.40 | 37,578 | 75,839 |
| 950.42 | 37,578 | 75,920 |
| 950.44 | 37,578 | 76,001 |
| 950.46 | 37,578 | 76,082 |
| 950.48 | 37,578 | 76,163 |
| 950.50 | 37,578 | **76,244** |

## Stage-Area-Storage for Pond EV: East Vault

| Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet) | Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet) |
|---|---|---|---|---|---|
| 942.00 | 9,191 | 0 | 943.06 | 9,191 | 1,383 |
| 942.02 | 9,191 | 26 | 943.08 | 9,191 | 1,409 |
| 942.04 | 9,191 | 52 | 943.10 | 9,191 | 1,435 |
| 942.06 | 9,191 | 78 | 943.12 | 9,191 | 1,461 |
| 942.08 | 9,191 | 104 | 943.14 | 9,191 | 1,487 |
| 942.10 | 9,191 | 130 | 943.16 | 9,191 | 1,513 |
| 942.12 | 9,191 | 157 | 943.18 | 9,191 | 1,540 |
| 942.14 | 9,191 | 183 | 943.20 | 9,191 | 1,566 |
| 942.16 | 9,191 | 209 | 943.22 | 9,191 | 1,592 |
| 942.18 | 9,191 | 235 | 943.24 | 9,191 | 1,618 |
| 942.20 | 9,191 | 261 | 943.26 | 9,191 | 1,644 |
| 942.22 | 9,191 | 287 | 943.28 | 9,191 | 1,670 |
| 942.24 | 9,191 | 313 | 943.30 | 9,191 | 1,696 |
| 942.26 | 9,191 | 339 | 943.32 | 9,191 | 1,722 |
| 942.28 | 9,191 | 365 | 943.34 | 9,191 | 1,748 |
| 942.30 | 9,191 | 391 | 943.36 | 9,191 | 1,774 |
| 942.32 | 9,191 | 417 | 943.38 | 9,191 | 1,800 |
| 942.34 | 9,191 | 444 | 943.40 | 9,191 | 1,827 |
| 942.36 | 9,191 | 470 | 943.42 | 9,191 | 1,853 |
| 942.38 | 9,191 | 496 | 943.44 | 9,191 | 1,879 |
| 942.40 | 9,191 | 522 | 943.46 | 9,191 | 1,905 |
| 942.42 | 9,191 | 548 | 943.48 | 9,191 | 1,931 |
| 942.44 | 9,191 | 574 | 943.50 | 9,191 | 1,957 |
| 942.46 | 9,191 | 600 | 943.52 | 9,191 | 1,983 |
| 942.48 | 9,191 | 626 | 943.54 | 9,191 | 2,009 |
| 942.50 | 9,191 | 652 | 943.56 | 9,191 | 2,035 |
| 942.52 | 9,191 | 678 | 943.58 | 9,191 | 2,061 |
| 942.54 | 9,191 | 705 | 943.60 | 9,191 | 2,087 |
| 942.56 | 9,191 | 731 | 943.62 | 9,191 | 2,114 |
| 942.58 | 9,191 | 757 | 943.64 | 9,191 | 2,140 |
| 942.60 | 9,191 | 783 | 943.66 | 9,191 | 2,166 |
| 942.62 | 9,191 | 809 | 943.68 | 9,191 | 2,192 |
| 942.64 | 9,191 | 835 | 943.70 | 9,191 | 2,218 |
| 942.66 | 9,191 | 861 | 943.72 | 9,191 | 2,244 |
| 942.68 | 9,191 | 887 | 943.74 | 9,191 | 2,270 |
| 942.70 | 9,191 | 913 | 943.76 | 9,191 | 2,296 |
| 942.72 | 9,191 | 939 | 943.78 | 9,191 | 2,322 |
| 942.74 | 9,191 | 965 | 943.80 | 9,191 | 2,348 |
| 942.76 | 9,191 | 992 | 943.82 | 9,191 | 2,375 |
| 942.78 | 9,191 | 1,018 | 943.84 | 9,191 | 2,401 |
| 942.80 | 9,191 | 1,044 | 943.86 | 9,191 | 2,427 |
| 942.82 | 9,191 | 1,070 | 943.88 | 9,191 | 2,453 |
| 942.84 | 9,191 | 1,096 | 943.90 | 9,191 | 2,479 |
| 942.86 | 9,191 | 1,122 | 943.92 | 9,191 | 2,505 |
| 942.88 | 9,191 | 1,148 | 943.94 | 9,191 | 2,531 |
| 942.90 | 9,191 | 1,174 | 943.96 | 9,191 | 2,557 |
| 942.92 | 9,191 | 1,200 | 943.98 | 9,191 | 2,583 |
| 942.94 | 9,191 | 1,226 | 944.00 | **18,423** | 2,609 |
| 942.96 | 9,191 | 1,252 | 944.02 | 18,423 | 2,683 |
| 942.98 | 9,191 | 1,279 | 944.04 | 18,423 | 2,757 |
| 943.00 | 9,191 | 1,305 | 944.06 | 18,423 | 2,831 |
| 943.02 | 9,191 | 1,331 | 944.08 | 18,423 | 2,905 |
| 943.04 | 9,191 | 1,357 | 944.10 | 18,423 | 2,979 |

17,567 SF - 4,456 SF = 13,1115 SF

## Stage-Area-Storage for Pond EV: East Vault (continued)

| Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet) |
|---|---|---|
| 944.12 | 18,423 | 3,052 |
| 944.14 | 18,423 | 3,126 |
| 944.16 | 18,423 | 3,200 |
| 944.18 | 18,423 | 3,274 |
| 944.20 | 18,423 | 3,348 |
| 944.22 | 18,423 | 3,422 |
| 944.24 | 18,423 | 3,496 |
| 944.26 | 18,423 | 3,569 |
| 944.28 | 18,423 | 3,643 |
| 944.30 | 18,423 | 3,717 |
| 944.32 | 18,423 | 3,791 |
| 944.34 | 18,423 | 3,865 |
| 944.36 | 18,423 | 3,939 |
| 944.38 | 18,423 | 4,012 |
| 944.40 | 18,423 | 4,086 |
| 944.42 | 18,423 | 4,160 |
| 944.44 | 18,423 | 4,234 |
| 944.46 | 18,423 | 4,308 |
| 944.48 | 18,423 | 4,382 |
| 944.50 | 18,423 | 4,456 |
| 944.52 | 18,423 | 4,533 |
| 944.54 | 18,423 | 4,617 |
| 944.56 | 18,423 | 4,712 |
| 944.58 | 18,423 | 4,804 |
| 944.60 | 18,423 | 4,899 |
| 944.62 | 18,423 | 4,996 |
| 944.64 | 18,423 | 5,096 |
| 944.66 | 18,423 | 5,196 |
| 944.68 | 18,423 | 5,299 |
| 944.70 | 18,423 | 5,403 |
| 944.72 | 18,423 | 5,509 |
| 944.74 | 18,423 | 5,616 |
| 944.76 | 18,423 | 5,725 |
| 944.78 | 18,423 | 5,834 |
| 944.80 | 18,423 | 5,945 |
| 944.82 | 18,423 | 6,057 |
| 944.84 | 18,423 | 6,170 |
| 944.86 | 18,423 | 6,285 |
| 944.88 | 18,423 | 6,400 |
| 944.90 | 18,423 | 6,516 |
| 944.92 | 18,423 | 6,634 |
| 944.94 | 18,423 | 6,752 |
| 944.96 | 18,423 | 6,871 |
| 944.98 | 18,423 | 6,991 |
| 945.00 | 18,423 | 7,112 |
| 945.02 | 18,423 | 7,233 |
| 945.04 | 18,423 | 7,356 |
| 945.06 | 18,423 | 7,479 |
| 945.08 | 18,423 | 7,603 |
| 945.10 | 18,423 | 7,728 |
| 945.12 | 18,423 | 7,854 |
| 945.14 | 18,423 | 7,980 |
| 945.16 | 18,423 | 8,107 |
| 945.18 | 18,423 | 8,234 |
| 945.20 | 18,423 | 8,363 |
| 945.22 | 18,423 | 8,491 |
| 945.24 | 18,423 | 8,621 |
| 945.26 | 18,423 | 8,751 |
| 945.28 | 18,423 | 8,882 |
| 945.30 | 18,423 | 9,013 |
| 945.32 | 18,423 | 9,145 |
| 945.34 | 18,423 | 9,277 |
| 945.36 | 18,423 | 9,410 |
| 945.38 | 18,423 | 9,544 |
| 945.40 | 18,423 | 9,678 |
| 945.42 | 18,423 | 9,812 |
| 945.44 | 18,423 | 9,947 |
| 945.46 | 18,423 | 10,082 |
| 945.48 | 18,423 | 10,218 |
| 945.50 | 18,423 | 10,355 |
| 945.52 | 18,423 | 10,492 |
| 945.54 | 18,423 | 10,629 |
| 945.56 | 18,423 | 10,766 |
| 945.58 | 18,423 | 10,905 |
| 945.60 | 18,423 | 11,043 |
| 945.62 | 18,423 | 11,182 |
| 945.64 | 18,423 | 11,321 |
| 945.66 | 18,423 | 11,461 |
| 945.68 | 18,423 | 11,601 |
| 945.70 | 18,423 | 11,741 |
| 945.72 | 18,423 | 11,882 |
| 945.74 | 18,423 | 12,023 |
| 945.76 | 18,423 | 12,165 |
| 945.78 | 18,423 | 12,307 |
| 945.80 | 18,423 | 12,449 |
| 945.82 | 18,423 | 12,591 |
| 945.84 | 18,423 | 12,734 |
| 945.86 | 18,423 | 12,877 |
| 945.88 | 18,423 | 13,020 |
| 945.90 | 18,423 | 13,164 |
| 945.92 | 18,423 | 13,308 |
| 945.94 | 18,423 | 13,452 |
| 945.96 | 18,423 | 13,596 |
| 945.98 | 18,423 | 13,741 |
| 946.00 | 18,423 | 13,886 |
| 946.02 | 18,423 | 14,031 |
| 946.04 | 18,423 | 14,176 |
| 946.06 | 18,423 | 14,322 |
| 946.08 | 18,423 | 14,467 |
| 946.10 | 18,423 | 14,613 |
| 946.12 | 18,423 | 14,760 |
| 946.14 | 18,423 | 14,906 |
| 946.16 | 18,423 | 15,053 |
| 946.18 | 18,423 | 15,199 |
| 946.20 | 18,423 | 15,346 |
| 946.22 | 18,423 | 15,493 |

## Stage-Area-Storage for Pond EV: East Vault (continued)

| Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet) |
|---|---|---|
| 946.24 | 18,423 | 15,641 |
| 946.26 | 18,423 | 15,788 |
| 946.28 | 18,423 | 15,936 |
| 946.30 | 18,423 | 16,083 |
| 946.32 | 18,423 | 16,231 |
| 946.34 | 18,423 | 16,379 |
| 946.36 | 18,423 | 16,527 |
| 946.38 | 18,423 | 16,676 |
| 946.40 | 18,423 | 16,824 |
| 946.42 | 18,423 | 16,972 |
| 946.44 | 18,423 | 17,121 |
| 946.46 | 18,423 | 17,270 |
| 946.48 | 18,423 | 17,418 |
| 946.50 | 18,423 | 17,567 |
| 946.52 | 18,423 | 17,716 |
| 946.54 | 18,423 | 17,865 |
| 946.56 | 18,423 | 18,014 |
| 946.58 | 18,423 | 18,163 |
| 946.60 | 18,423 | 18,312 |
| 946.62 | 18,423 | 18,461 |
| 946.64 | 18,423 | 18,611 |
| 946.66 | 18,423 | 18,760 |
| 946.68 | 18,423 | 18,909 |
| 946.70 | 18,423 | 19,058 |
| 946.72 | 18,423 | 19,208 |
| 946.74 | 18,423 | 19,357 |
| 946.76 | 18,423 | 19,506 |
| 946.78 | 18,423 | 19,656 |
| 946.80 | 18,423 | 19,805 |
| 946.82 | 18,423 | 19,954 |
| 946.84 | 18,423 | 20,103 |
| 946.86 | 18,423 | 20,253 |
| 946.88 | 18,423 | 20,402 |
| 946.90 | 18,423 | 20,551 |
| 946.92 | 18,423 | 20,700 |
| 946.94 | 18,423 | 20,849 |
| 946.96 | 18,423 | 20,998 |
| 946.98 | 18,423 | 21,147 |
| 947.00 | 18,423 | 21,296 |
| 947.02 | 18,423 | 21,445 |
| 947.04 | 18,423 | 21,594 |
| 947.06 | 18,423 | 21,742 |
| 947.08 | 18,423 | 21,891 |
| 947.10 | 18,423 | 22,039 |
| 947.12 | 18,423 | 22,188 |
| 947.14 | 18,423 | 22,336 |
| 947.16 | 18,423 | 22,484 |
| 947.18 | 18,423 | 22,632 |
| 947.20 | 18,423 | 22,780 |
| 947.22 | 18,423 | 22,928 |
| 947.24 | 18,423 | 23,075 |
| 947.26 | 18,423 | 23,223 |
| 947.28 | 18,423 | 23,370 |
| 947.30 | 18,423 | 23,517 |
| 947.32 | 18,423 | 23,664 |
| 947.34 | 18,423 | 23,811 |
| 947.36 | 18,423 | 23,957 |
| 947.38 | 18,423 | 24,104 |
| 947.40 | 18,423 | 24,250 |
| 947.42 | 18,423 | 24,396 |
| 947.44 | 18,423 | 24,542 |
| 947.46 | 18,423 | 24,687 |
| 947.48 | 18,423 | 24,832 |
| 947.50 | 18,423 | 24,978 |
| 947.52 | 18,423 | 25,122 |
| 947.54 | 18,423 | 25,267 |
| 947.56 | 18,423 | 25,411 |
| 947.58 | 18,423 | 25,556 |
| 947.60 | 18,423 | 25,699 |
| 947.62 | 18,423 | 25,843 |
| 947.64 | 18,423 | 25,986 |
| 947.66 | 18,423 | 26,129 |
| 947.68 | 18,423 | 26,272 |
| 947.70 | 18,423 | 26,415 |
| 947.72 | 18,423 | 26,557 |
| 947.74 | 18,423 | 26,698 |
| 947.76 | 18,423 | 26,840 |
| 947.78 | 18,423 | 26,981 |
| 947.80 | 18,423 | 27,122 |
| 947.82 | 18,423 | 27,262 |
| 947.84 | 18,423 | 27,402 |
| 947.86 | 18,423 | 27,542 |
| 947.88 | 18,423 | 27,681 |
| 947.90 | 18,423 | 27,820 |
| 947.92 | 18,423 | 27,959 |
| 947.94 | 18,423 | 28,097 |
| 947.96 | 18,423 | 28,234 |
| 947.98 | 18,423 | 28,372 |
| 948.00 | 18,423 | 28,508 |
| 948.02 | 18,423 | 28,645 |
| 948.04 | 18,423 | 28,781 |
| 948.06 | 18,423 | 28,916 |
| 948.08 | 18,423 | 29,051 |
| 948.10 | 18,423 | 29,186 |
| 948.12 | 18,423 | 29,320 |
| 948.14 | 18,423 | 29,453 |
| 948.16 | 18,423 | 29,586 |
| 948.18 | 18,423 | 29,718 |
| 948.20 | 18,423 | 29,850 |
| 948.22 | 18,423 | 29,981 |
| 948.24 | 18,423 | 30,112 |
| 948.26 | 18,423 | 30,242 |
| 948.28 | 18,423 | 30,372 |
| 948.30 | 18,423 | 30,501 |
| 948.32 | 18,423 | 30,629 |
| 948.34 | 18,423 | 30,756 |

## Stage-Area-Storage for Pond EV: East Vault (continued)

| Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet) |
|---|---|---|
| 948.36 | 18,423 | 30,883 |
| 948.38 | 18,423 | 31,010 |
| 948.40 | 18,423 | 31,135 |
| 948.42 | 18,423 | 31,260 |
| 948.44 | 18,423 | 31,384 |
| 948.46 | 18,423 | 31,507 |
| 948.48 | 18,423 | 31,630 |
| 948.50 | 18,423 | 31,751 |
| 948.52 | 18,423 | 31,872 |
| 948.54 | 18,423 | 31,992 |
| 948.56 | 18,423 | 32,111 |
| 948.58 | 18,423 | 32,230 |
| 948.60 | 18,423 | 32,347 |
| 948.62 | 18,423 | 32,463 |
| 948.64 | 18,423 | 32,578 |
| 948.66 | 18,423 | 32,693 |
| 948.68 | 18,423 | 32,806 |
| 948.70 | 18,423 | 32,918 |
| 948.72 | 18,423 | 33,029 |
| 948.74 | 18,423 | 33,139 |
| 948.76 | 18,423 | 33,247 |
| 948.78 | 18,423 | 33,354 |
| 948.80 | 18,423 | 33,460 |
| 948.82 | 18,423 | 33,564 |
| 948.84 | 18,423 | 33,667 |
| 948.86 | 18,423 | 33,767 |
| 948.88 | 18,423 | 33,867 |
| 948.90 | 18,423 | 33,964 |
| 948.92 | 18,423 | 34,059 |
| 948.94 | 18,423 | 34,151 |
| 948.96 | 18,423 | 34,241 |
| 948.98 | 18,423 | 34,325 |
| 949.00 | 18,423 | 34,408 |
| 949.02 | 18,423 | 34,481 |
| 949.04 | 18,423 | 34,555 |
| 949.06 | 18,423 | 34,629 |
| 949.08 | 18,423 | 34,703 |
| 949.10 | 18,423 | 34,777 |
| 949.12 | 18,423 | 34,851 |
| 949.14 | 18,423 | 34,925 |
| 949.16 | 18,423 | 34,998 |
| 949.18 | 18,423 | 35,072 |
| 949.20 | 18,423 | 35,146 |
| 949.22 | 18,423 | 35,220 |
| 949.24 | 18,423 | 35,294 |
| 949.26 | 18,423 | 35,368 |
| 949.28 | 18,423 | 35,442 |
| 949.30 | 18,423 | 35,515 |
| 949.32 | 18,423 | 35,589 |
| 949.34 | 18,423 | 35,663 |
| 949.36 | 18,423 | 35,737 |
| 949.38 | 18,423 | 35,811 |
| 949.40 | 18,423 | 35,885 |
| 949.42 | 18,423 | 35,958 |
| 949.44 | 18,423 | 36,032 |
| 949.46 | 18,423 | 36,106 |
| 949.48 | 18,423 | 36,180 |
| 949.50 | 18,423 | **36,254** |

## Project Information

| | |
|---|---|
| Calculator Version: | Version 3: January 2017 |
| Project Name: | Greco Minnetonka Existing Site |
| User Name / Company Name: | |
| Date: | 10/01/23 |
| Project Description: | |
| Construction Permit?: | Yes |

## Site Information

| | |
|---|---|
| Retention Requirement (inches): | 1.1 |
| Site's Zip Code: | 55391 |
| Annual Rainfall (inches): | 29.9 |
| Phosphorus EMC (mg/l): | 0.3 |
| TSS EMC (mg/l): | 54.5 |

### Total Site Area

| Land Cover | A Soils (acres) | B Soils (acres) | C Soils (acres) | D Soils (acres) | Total (acres) |
|---|---|---|---|---|---|
| Forest/Open Space - Undisturbed, protected forest/open space or reforested land | | | | | 0 |
| Managed Turf - disturbed, graded for yards or other turf to be mowed/managed | | | | 3.815 | 3.815 |
| | | | Impervious Area (acres) | | 3.158 |
| | | | | Total Area (acres) | 6.973 |

### Site Areas Routed to BMPs

| Land Cover | A Soils (acres) | B Soils (acres) | C Soils (acres) | D Soils (acres) | Total (acres) |
|---|---|---|---|---|---|
| Forest/Open Space - Undisturbed, protected forest/open space or reforested land | | | | | 0 |
| Managed Turf - disturbed, graded for yards or other turf to be mowed/managed | | | | | 0 |
| | | | Impervious Area (acres) | | |
| | | | | Total Area (acres) | 0 |

## Summary Information

### Performance Goal Requirement

| | | |
|---|---|---|
| Performance goal volume retention requirement: | 12610 | ft3 |
| Volume removed by BMPs towards performance goal: | | $ft^3$ |
| **Percent volume removed towards performance goal** | | **%** |

### Annual Volume and Pollutant Load Reductions

| | | |
|---|---|---|
| Post development annual runoff volume | 8.8665 | acre-ft |
| Annual runoff volume removed by BMPs: | | acre-ft |
| **Percent annual runoff volume removed:** | | **%** |
| | | |
| Post development annual particulate P load: | 3.979 | lbs |
| Annual particulate P removed by BMPs: | | lbs |
| Post development annual dissolved P load: | 3.256 | lbs |
| Annual dissolved P removed by BMPs: | | lbs |
| **Percent annual total phosphorus removed:** | | **%** |
| | | |
| Post development annual TSS load: | 1314.4 | lbs |
| Annual TSS removed by BMPs: | | lbs |
| **Percent annual TSS removed:** | | **%** |

## BMP Summary

### Performance Goal Summary

| BMP Name | BMP Volume Capacity (ft3) | Volume Recieved (ft3) | Volume Retained (ft3) | Volume Outflow (ft3) | Percent Retained (%) |
|---|---|---|---|---|---|

### Annual Volume Summary

| BMP Name | Volume From Direct Watershed (acre-ft) | Volume From Upstream BMPs (acre-ft) | Volume Retained (acre-ft) | Volume outflow (acre-ft) | Percent Retained (%) |
|---|---|---|---|---|---|

### Particulate Phosphorus Summary

| BMP Name | Load From Direct Watershed (lbs) | Load From Upstream BMPs (lbs) | Load Retained (lbs) | Outflow Load (lbs) | Percent Retained (%) |
|---|---|---|---|---|---|

### Dissolved Phosphorus Summary

| BMP Name | Load From Direct Watershed (lbs) | Load From Upstream BMPs (lbs) | Load Retained (lbs) | Outflow Load (lbs) | Percent Retained (%) |
|---|---|---|---|---|---|

**TSS Summary**

| BMP Name | Load From Direct Watershed (lbs) | Load From Upstream BMPs (lbs) | Load Retained (lbs) | Outflow Load (lbs) | Percent Retained (%) |
|---|---|---|---|---|---|

## BMP Schematic

## Project Information

| | |
|---|---|
| Calculator Version: | Version 3: January 2017 |
| Project Name: | Greco Minnetonka Proposed Site |
| User Name / Company Name: | |
| Date: | 10/01/23 |
| Project Description: | |
| Construction Permit?: | Yes |

## Site Information

| | |
|---|---|
| Retention Requirement (inches): | 1.1 |
| Site's Zip Code: | 55391 |
| Annual Rainfall (inches): | 29.9 |
| Phosphorus EMC (mg/l): | 0.3 |
| TSS EMC (mg/l): | 54.5 |

### Total Site Area

| Land Cover | A Soils (acres) | B Soils (acres) | C Soils (acres) | D Soils (acres) | Total (acres) |
|---|---|---|---|---|---|
| Forest/Open Space - Undisturbed, protected forest/open space or reforested land | | | | | 0 |
| Managed Turf - disturbed, graded for yards or other turf to be mowed/managed | | | | 2.626 | 2.626 |
| | | | | Impervious Area (acres) | 4.347 |
| | | | | Total Area (acres) | 6.973 |

### Site Areas Routed to BMPs

| Land Cover | A Soils (acres) | B Soils (acres) | C Soils (acres) | D Soils (acres) | Total (acres) |
|---|---|---|---|---|---|
| Forest/Open Space - Undisturbed, protected forest/open space or reforested land | | | | | 0 |
| Managed Turf - disturbed, graded for yards or other turf to be mowed/managed | | | | 0.578 | 0.578 |
| | | | | Impervious Area (acres) | 3.939 |
| | | | | Total Area (acres) | 4.517 |

## Summary Information

### Performance Goal Requirement

| | | |
|---|---|---|
| Performance goal volume retention requirement: | 17358 | ft3 |
| Volume removed by BMPs towards performance goal: | | $ft^3$ |
| **Percent volume removed towards performance goal** | | **%** |

### Annual Volume and Pollutant Load Reductions

| | | |
|---|---|---|
| Post development annual runoff volume | 10.7329 | acre-ft |
| Annual runoff volume removed by BMPs: | 0 | acre-ft |
| **Percent annual runoff volume removed:** | **0** | **%** |
| | | |
| Post development annual particulate P load: | 4.817 | lbs |
| Annual particulate P removed by BMPs: | 3.325 | lbs |
| Post development annual dissolved P load: | 3.941 | lbs |
| Annual dissolved P removed by BMPs: | 0 | lbs |
| **Percent annual total phosphorus removed:** | **38** | **%** |
| | | |
| Post development annual TSS load: | 1591 | lbs |
| Annual TSS removed by BMPs: | 1098.2 | lbs |
| **Percent annual TSS removed:** | **69** | **%** |

## BMP Summary

### Performance Goal Summary

| BMP Name | BMP Volume Capacity (ft3) | Volume Recieved (ft3) | Volume Retained (ft3) | Volume Outflow (ft3) | Percent Retained (%) |
|---|---|---|---|---|---|
| West Underground Vualt | 0 | 10490 | 0 | 10490 | 0 |
| East underground Vault | 0 | 5239 | 0 | 5239 | 0 |

### Annual Volume Summary

| BMP Name | Volume From Direct Watershed (acre-ft) | Volume From Upstream BMPs (acre-ft) | Volume Retained (acre-ft) | Volume outflow (acre-ft) | Percent Retained (%) |
|---|---|---|---|---|---|
| West Underground Vualt | 5.703 | 0 | 0 | 5.703 | 0 |
| East underground Vault | 3.0126 | 0 | 0 | 3.0126 | 0 |

### Particulate Phosphorus Summary

| BMP Name | Load From Direct Watershed (lbs) | Load From Upstream BMPs (lbs) | Load Retained (lbs) | Outflow Load (lbs) | Percent Retained (%) |
|---|---|---|---|---|---|
| West Underground Vualt | 2.5595 | 0 | 2.1756 | 0.3839 | 85 |
| East underground Vault | 1.352 | 0 | 1.1492 | 0.2028 | 85 |

**Dissolved Phosphorus Summary**

| BMP Name | Load From Direct Watershed (lbs) | Load From Upstream BMPs (lbs) | Load Retained (lbs) | Outflow Load (lbs) | Percent Retained (%) |
|---|---|---|---|---|---|
| West Underground Vualt | 2.0941 | 0 | 0 | 2.0941 | 0 |
| East underground Vault | 1.1062 | 0 | 0 | 1.1062 | 0 |

**TSS Summary**

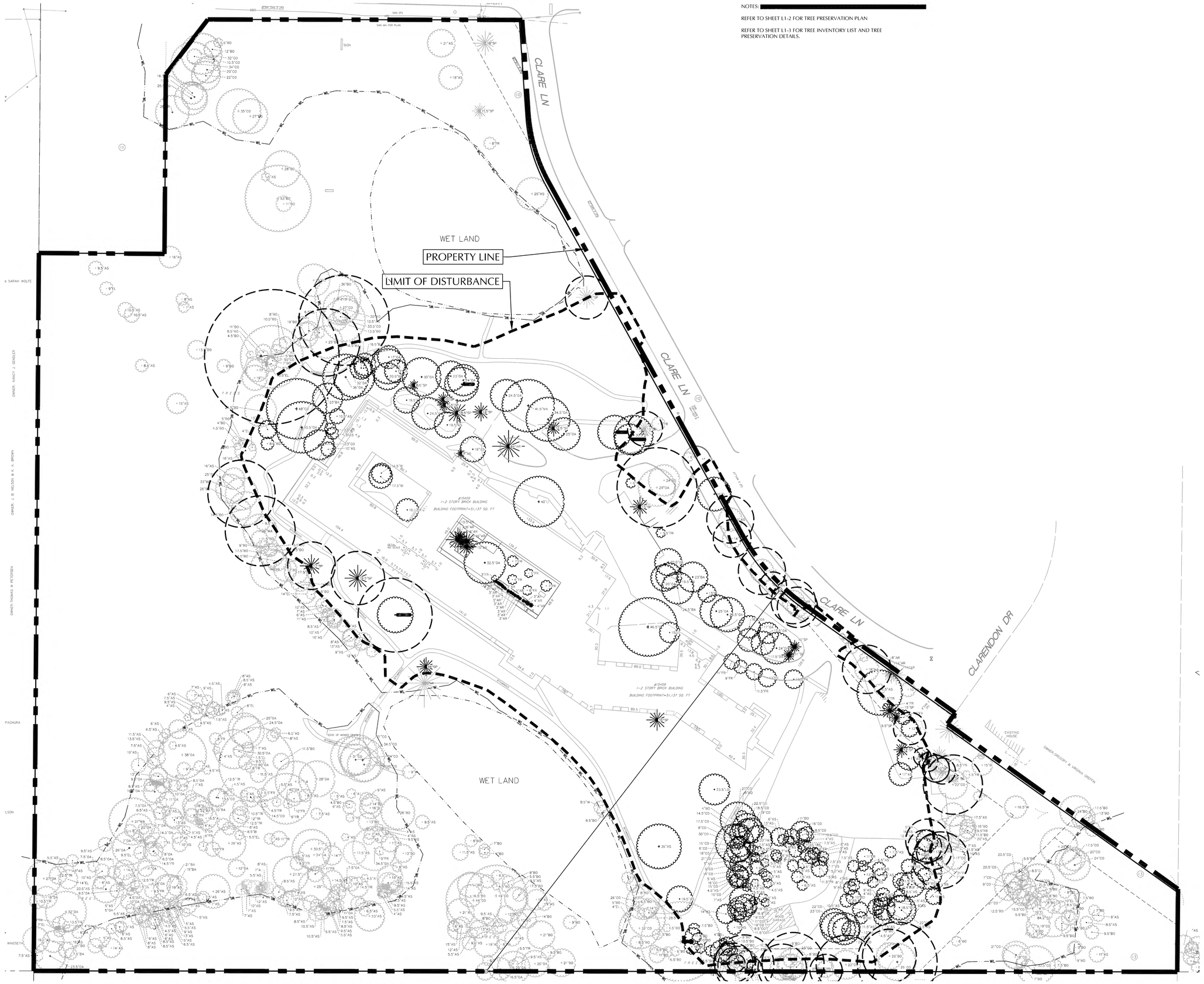
| BMP Name | Load From Direct Watershed (lbs) | Load From Upstream BMPs (lbs) | Load Retained (lbs) | Outflow Load (lbs) | Percent Retained (%) |
|---|---|---|---|---|---|
| West Underground Vualt | 845.41 | 0 | 718.6 | 126.81 | 85 |
| East underground Vault | 446.58 | 0 | 379.59 | 66.99 | 85 |

## BMP Schematic

NOTES:

REFER TO SHEET L1-2 FOR TREE PRESERVATION PLAN

REFER TO SHEET L1-3 FOR TREE INVENTORY LIST AND TREE PRESERVATION DETAILS.





MINNETONKA SENIOR APARTMENTS

MINNETONKA, MN

GRECO

607 WASHINGTON AVE. N. SUITE 100
MINNEAPOLIS, MN 55401

LOUCKS

PLANNING
CIVIL ENGINEERING
LAND SURVEYING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL

7200 Hemlock Lane, Suite 300
Maple Grove, MN 55369
763.424.5505
www.loucksinc.com




**SUBMITTAL/REVISIONS**

10/18/23 C TY SUBM TTAL

**PROFESSIONAL SIGNATURE**

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Landscape Architect under the laws of the State of Minnesota.

Douglas D. Lolken - LA
License No. 45591
Date -

**QUALITY CONTROL**

| | |
|---|---|
| Loucks Project No. | 23055A |
| Project Lead | PJD |
| Drawn By | DDL |
| Checked By | DDL |
| Review Date | 10/18/23 |



# OVERALL TREE INVENTORY PLAN

# L1-1

Plotted: 10 /18 / 2023 10:48 AM W:\2023\23055A\CADD DATA\LANDSCAPE\L dwg Sheet File\L1-1 - TREE INVENTORY PLAN

NOTES:

REFER TO SHEET L1-3 FOR TREE INVENTORY LIST AND TREE PRESERVATION DETAILS.

LANDSCAPE LEGEND

- + EXISTING TREES TO REMAIN
- P EXISTING SIGNIFICANT TREES TO BE PROTECTED (SEE TREE PROTECTION DETAIL 3/L1-6)
- X EXISTING HIGH PRIORITY TREES TO BE REMOVED
- X EXISTING SIGNIFICANT TREES TO BE REMOVED

EXISTING DECIDUOUS TREE TO BE SAVED (TYP.)

SIGNIFICANT TREE TO BE PROTECTED, TYP.

CRITICAL ROOT ZONE (30% MAX DISTURBANCE) TYP.

EXISTING DECIDUOUS TREE TO BE SAVED (TYP.)

LIMIT OF DISTURBANCE

EXISTING HIGH-PRIORITY TREE TO BE REMOVED (TYP.)

EXISTING SIGNIFICANT TREE TO BE REMOVED (TYP.)

EXISTING 3" TREES TO BE REMOVED (NON-SIGNIFICANT)

EXISTING CONIFEROUS TREE TO BE SAVED (TYP.)

EXISTING DECIDUOUS TREE TO BE SAVED (TYP.)

EXISTING HIGH-PRIORITY TREE TO BE REMOVED (TYP.)

EXISTING SIGNIFICANT TREE TO BE REMOVED (TYP.)

EXISTING DECIDUOUS TREE TO BE SAVED (TYP.)

WET LAND

CLARE LN

CLARENDON DR

SCALE IN FEET 0 30 60

# TREE INVENTORY PLAN L1-2


MINNETONKA SENIOR APARTMENTS
MINNETONKA, MN

GRECO
607 WASHINGTON AVE. N. SUITE 100
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www.loucksinc.com




SUBMITTAL/REVISIONS

10/18/23 C TY SUBM TTAL

PROFESSIONAL SIGNATURE

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Landscape Architect under the laws of the State of Minnesota.

Douglas D. Loken - LA

License No. 45591

Date -

QUALITY CONTROL

| | |
|---|---|
| Loucks Project No. | 23055A |
| Project Lead | PJD |
| Drawn By | DDL |
| Checked By | DDL |
| Review Date | 10/18/23 |




Plotted: 10 /18 / 2023 10:48 AM W:\2023\23055A\CADD DATA\LANDSCAPE\..dwg Sheet Files\L1-1 - TREE INVENTORY PLAN

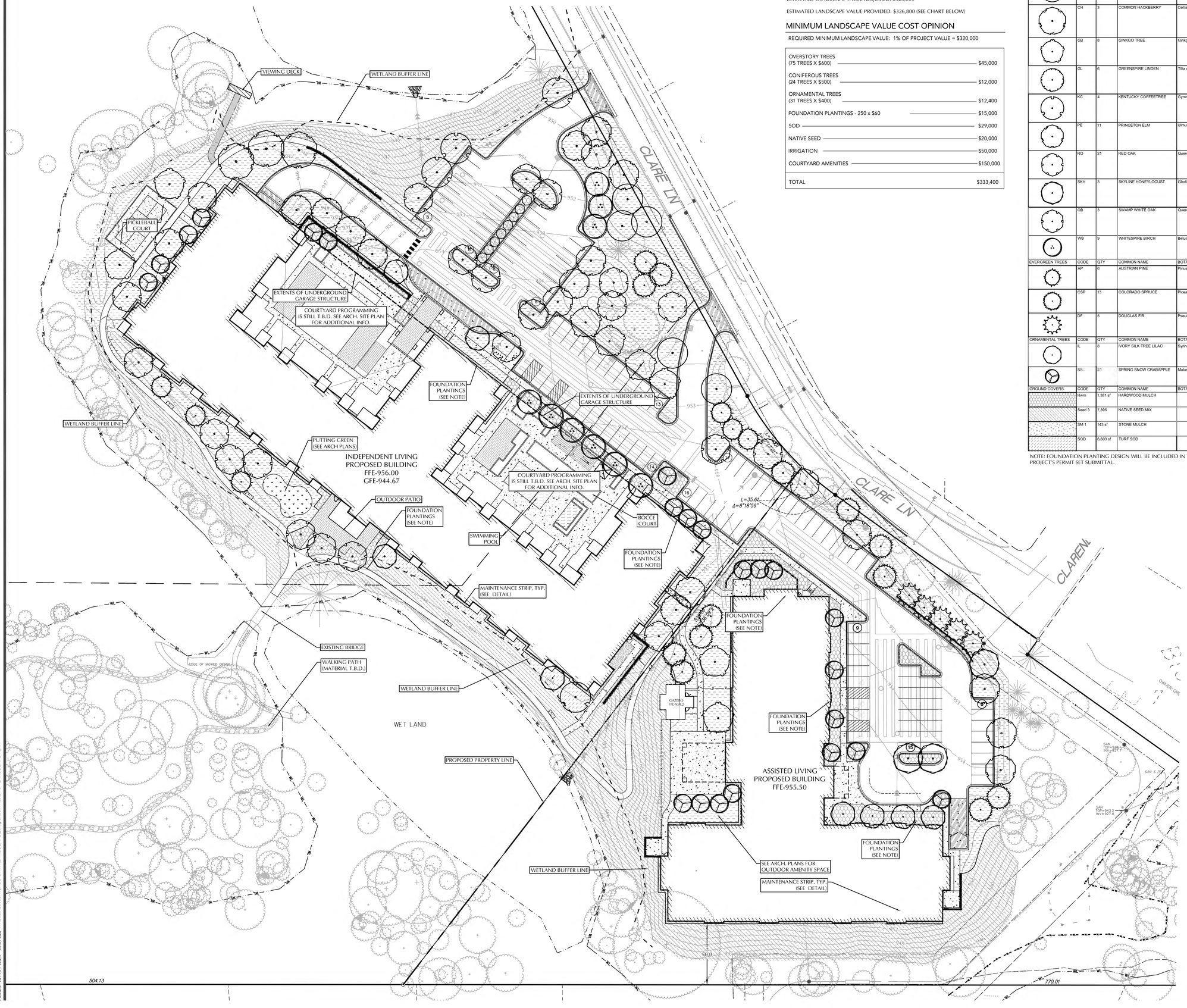
| Point Number | DESCRIPTION | REMOVED TREES "SDE" | > 4 INCH | Stems | Species | Condition | DBH | Significant "High Priority" Trees |
|---|---|---|---|---|---|---|---|---|
| 6001 | 11"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 11 | YES |
| 6002 | 6.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Poor | 6.5 | NO |
| 6003 | 5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 5 | NO |
| 6004 | 11.5"BA | SE-TREE-S | 4 IN+ | 1 | Basswood | Good | 11.5 | YES |
| 6005 | 9.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Poor | 9.5 | YES |
| 6006 | 8.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 8.5 | NO |
| 6007 | 12.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Poor | 12.5 | YES |
| 6008 | 13"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 13 | YES |
| 6009 | 9.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 9.5 | YES |
| 6010 | 8.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 8.5 | NO |
| 6011 | 8"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Poor | 8 | NO |
| 6012 | 7"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 7 | NO |
| 6013 | 7.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 7.5 | NO |
| 6014 | 8"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 8 | NO |
| 6015 | 10"EL | SE-TREE-S | 4 IN+ | 1 | Elm; American | Good | 10 | YES |
| 6016 | 84.2"CO | SE-TREE-S | 4 IN+ | 4 | Cottonwood | Good | 84.2 | YES |
| 6017 | 8.5"EL | SE-TREE-S | 4 IN+ | 1 | Elm; American | Good | 8.5 | NO |
| 6018 | 10.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 10.5 | YES |
| 6019 | 6.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 6.5 | NO |
| 6020 | 9.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Poor | 9.5 | YES |
| 6021 | 9"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 9 | NO |
| 6022 | 9"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 9 | NO |
| 6023 | 7.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Poor | 7.5 | NO |
| 6024 | 30.5"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 30.5 | YES |
| 6025 | 9.5"EL | SE-TREE-S | 4 IN+ | 1 | Elm; American | Good | 9.5 | YES |
| 6026 | 7"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 7 | NO |
| 6027 | 18"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 18 | YES |
| 6028 | 21"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 21 | YES |
| 6029 | 9"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 9 | NO |
| 6030 | 18"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 18 | YES |
| 6031 | 8"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Poor | 8 | NO |
| 6032 | 4"EL | SE-TREE-S | 4 IN+ | 1 | Elm; American | Good | 4 | NO |
| 6033 | 8"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 8 | NO |
| 6034 | 5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 5 | NO |
| 6035 | 26"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 26 | YES |
| 6036 | 24"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 24 | YES |
| 6037 | 10"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 10 | YES |
| 6038 | 13"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 13 | YES |
| 6039 | 17.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 17.5 | YES |
| 6040 | 24"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 24 | YES |
| 6041 | 17.5"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 17.5 | YES |
| 6042 | 20"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 20 | YES |
| 6043 | 29"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 29 | YES |
| 6044 | 8.5"EL | SE-TREE-S | 4 IN+ | 1 | Elm; American | Good | 8.5 | NO |
| 6045 | 5.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Poor | 5.5 | NO |
| 6046 | 20.5"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 20.5 | YES |
| 6047 | 21"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 21 | YES |
| 6048 | 15.5"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 15.5 | YES |
| 6049 | 5.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 5.5 | NO |
| 6050 | 10"EL | SE-TREE-S | 4 IN+ | 1 | Elm; American | Good | 10 | YES |
| 6051 | 12.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Poor | 12.5 | YES |
| 6052 | 21.5"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 21.5 | YES |
| 6053 | 9"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 9 | NO |
| 6054 | 7"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 7 | NO |
| 6055 | 20.5"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 20.5 | YES |
| 6056 | 6"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 6 | NO |
| 6057 | 29"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 29 | YES |
| 6058 | 20"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 20 | YES |
| 6059 | 12"BO | SDE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 12 | YES |
| 6060 | 4.5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 4.5 | NO |
| 6061 | 5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 5 | NO |
| **6062** | **11.5"AS** | **SDE-TREE-S** | **4 IN+** | **1** | **Ash; green** | **Good** | **11.5** | **YES** |
| 6063 | 4"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 4 | NO |
| 6064 | 9"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 9 | NO |
| 6065 | 9"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 9 | NO |
| 6066 | 9"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 9 | NO |
| **6067** | **16.5"AS** | **SDE-TREE-S** | **4 IN+** | **1** | **Ash; green** | **Fair** | **16.5** | **YES** |
| 6068 | 5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 5 | NO |
| 6069 | 18.5"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 18.5 | YES |
| 6070 | 22"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 22 | YES |
| 6071 | 8.5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 8.5 | NO |
| 6072 | 19"BO | SDE-TREE-S | 4 IN+ | 2 | Boxelder | Fair | 19 | YES |
| **6073** | **11"AS** | **SDE-TREE-S** | **4 IN+** | **1** | **Ash; green** | **Good** | **11** | **YES** |
| 6074 | 9"FR | SDE-TREE-S | 4 IN+ | 1 | Cherry; black | Good | 9 | NO |
| **6075** | **23.5"AS** | **SDE-TREE-S** | **4 IN+** | **1** | **Ash; green** | **Fair** | **23.5** | **YES** |
| 6076 | 7"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7 | NO |
| 6077 | 21"FR | SE-TREE-S | 4 IN+ | 1 | Cherry; black | Fair | 21 | YES |
| 6078 | 17"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 17 | YES |
| 6079 | 11.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 11.5 | YES |
| 6080 | 11.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 11.5 | YES |
| 6081 | 9.5"FR | SE-TREE-S | 4 IN+ | 1 | Crabapple | Fair | 9.5 | YES |
| 6082 | 20"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 20 | YES |
| 6083 | 16"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 16 | YES |
| 6084 | 17.5"AS | SE-TREE-S | 4 IN+ | 2 | Ash; green | Good | 17.5 | YES |
| 6085 | 16.5"WI | SE-TREE-S | 4 IN+ | 1 | Willow | Fair | 16.5 | YES |
| 6086 | 6"FR | SE-TREE-S | 4 IN+ | 1 | Plum | Fair | 6 | NO |
| 6087 | 15"BI | SE-TREE-S | 4 IN+ | 4 | Birch; paper | Fair | 15 | YES |
| 6088 | 4.5"FR | SE-TREE-S | 4 IN+ | 1 | Crabapple | Good | 4.5 | NO |
| 6089 | 22"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 22 | YES |
| 6090 | 8"SP | SE-TREE-S | 4 IN+ | 1 | Spruce; white | Fair | 8 | NO |
| 6091 | 8"SP | SE-TREE-S | 4 IN+ | 1 | Spruce; white | Fair | 8 | NO |
| 6092 | 8.5"FR | SE-TREE-S | 4 IN+ | 1 | Cherry | Good | 8.5 | NO |
| 6093 | 13"AR | SE-TREE-S | 4 IN+ | 1 | Arborvitae | Good | 13 | YES |
| 6094 | 9"SP | SE-TREE-S | 4 IN+ | 1 | Spruce; white | Fair | 9 | NO |
| 6095 | 10"SP | SE-TREE-S | 4 IN+ | 1 | Spruce; white | Fair | 10 | YES |
| 6096 | 7"SP | SE-TREE-S | 4 IN+ | 1 | Spruce; white | Fair | 7 | NO |
| 6097 | 6.5"SP | SDE-TREE-S | 4 IN+ | 1 | Spruce; Norway | Fair | 6.5 | NO |
| 6098 | 20"SP | SE-TREE-S | 4 IN+ | 1 | Spruce; white | Fair | 20 | YES |
| **6099** | **17"AS** | **SDE-TREE-S** | **4 IN+** | **1** | **Ash; green** | **Good** | **17** | **YES** |
| **6100** | **12"SP** | **SDE-TREE-S** | **4 IN+** | **1** | **Spruce; blue** | **Poor** | **12** | **YES** |
| **6101** | **17"AS** | **SDE-TREE-S** | **4 IN+** | **1** | **Ash; green** | **Good** | **17** | **YES** |
| **6102** | **12"FR** | **SDE-TREE-S** | **4 IN+** | **3** | **Crabapple** | **Fair** | **12** | **YES** |
| **6103** | **10"FR** | **SDE-TREE-S** | **4 IN+** | **3** | **Crabapple** | **Fair** | **10** | **YES** |
| **6104** | **9.5"SP** | **SDE-TREE-S** | **4 IN+** | **1** | **Spruce; blue** | **Poor** | **9.5** | **YES** |
| **6105** | **15"SP** | **SDE-TREE-S** | **4 IN+** | **1** | **Spruce; blue** | **Fair** | **15** | **YES** |
| 6106 | 4"FR | SDE-TREE-S | 4 IN+ | 1 | Crabapple | Fair | 4 | NO |
| 6107 | 10"FR | SE-TREE-S | 4 IN+ | 1 | Plum | Good | 10 | YES |
| 6108 | 14"AR | SE-TREE-S | 4 IN+ | 3 | Arborvitae | Good | 14 | YES |
| 6109 | 14"AR | SE-TREE-S | 4 IN+ | 4 | Arborvitae | Fair | 14 | YES |
| 6110 | 8"AR | SE-TREE-S | 4 IN+ | 1 | Arborvitae | Good | 8 | NO |
| 6111 | 6.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 6.5 | NO |
| **6112** | **35.5"FR** | **SDE-TREE-S** | **4 IN+** | **4** | **Mulberry** | **Fair** | **35.5** | **YES** |
| 6113 | 18"MA | SE-TREE-S | 4 IN+ | 8 | Maple; amur | Fair | 18 | YES |
| 6114 | 5"FR | SE-TREE-S | 4 IN+ | 1 | Cherry | Good | 5 | NO |
| 6115 | 8.5"FR | SE-TREE-S | 4 IN+ | 1 | Crabapple | Fair | 8.5 | NO |
| 6116 | 7"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7 | NO |
| 6117 | 10"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 10 | YES |
| 6118 | 13.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 13.5 | YES |
| 6119 | 13"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 13 | YES |
| 6120 | 5"FR | SE-TREE-S | 4 IN+ | 1 | Cherry; black | Fair | 5 | NO |
| **6121** | **16"AS** | **SDE-TREE-S** | **4 IN+** | **1** | **Ash; green** | **Good** | **16** | **YES** |
| **6122** | **12.5"AS** | **SDE-TREE-S** | **4 IN+** | **1** | **Ash; green** | **Poor** | **12.5** | **YES** |
| 6123 | 8"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 8 | NO |
| **6124** | **10"AS** | **SDE-TREE-S** | **4 IN+** | **1** | **Ash; green** | **Good** | **10** | **YES** |
| **6125** | **11.5"AS** | **SDE-TREE-S** | **4 IN+** | **1** | **Ash; green** | **Good** | **11.5** | **YES** |
| 6126 | 4"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 4 | NO |
| 6127 | 8.5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 8.5 | NO |
| 6128 | 9"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 9 | NO |
| 6129 | 7.5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7.5 | NO |
| **6130** | **11"FR** | **SDE-TREE-S** | **4 IN+** | **1** | **Cherry; black** | **Fair** | **11** | **YES** |

| Point Number | DESCRIPTION | REMOVED TREES "SDE" | > 4 INCH | Stems | Species | Condition | DBH | Significant "High Priority" Trees |
|---|---|---|---|---|---|---|---|---|
| 6131 | 6.5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 6.5 | NO |
| 6132 | 7.5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7.5 | NO |
| 6133 | 13"BO | SDE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 13 | YES |
| 6134 | 4"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 4 | NO |
| 6135 | 9"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 9 | NO |
| 6136 | 8"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 8 | NO |
| 6137 | 7"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7 | NO |
| 6138 | 10"BO | SDE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 10 | YES |
| 6139 | 9"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 9 | NO |
| **6140** | **10.5"AS** | **SDE-TREE-S** | **4 IN+** | **1** | **Ash; green** | **Good** | **10.5** | **YES** |
| 6141 | 8"BO | SDE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 8 | NO |
| 6142 | 22"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 22 | YES |
| 6143 | 23"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 23 | YES |
| 6144 | 17"CO | SDE-TREE-S | 4 IN+ | 2 | Cottonwood | Fair | 17 | YES |
| 6145 | 24.5"CO | SDE-TREE-S | 4 IN+ | 2 | Cottonwood | Good | 24.5 | YES |
| 6146 | 13"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 13 | YES |
| 6147 | 22"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 22 | YES |
| 6148 | 12"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Poor | 12 | YES |
| 6149 | 8"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 8 | NO |
| 6150 | 23"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Fair | 23 | YES |
| 6151 | 9"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 9 | NO |
| 6152 | 20"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 20 | YES |
| 6153 | 18"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 18 | YES |
| 6154 | 13"BO | SDE-TREE-S | 4 IN+ | 2 | Boxelder | Fair | 13 | YES |
| 6155 | 5.5"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Fair | 5.5 | NO |
| 6156 | 22"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 22 | YES |
| 6157 | 14"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 14 | YES |
| 6158 | 6.5"EL | SE-TREE-S | 4 IN+ | 1 | Elm; American | Good | 6.5 | NO |
| 6159 | 14.5"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 14.5 | YES |
| 6160 | 11"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Fair | 11 | YES |
| 6161 | 14"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 14 | YES |
| 6162 | 16"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 16 | YES |
| 6163 | 10"BO | SDE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 10 | YES |
| 6164 | 10.5"BO | SDE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 10.5 | YES |
| 6165 | 8"BO | SDE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 8 | NO |
| 6166 | 7"BO | SDE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 7 | NO |
| 6167 | 4"BO | SDE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 4 | NO |
| **6168** | **10"AS** | **SDE-TREE-S** | **4 IN+** | **1** | **Ash; green** | **Good** | **10** | **YES** |
| **6169** | **14"AS** | **SDE-TREE-S** | **4 IN+** | **1** | **Ash; green** | **Good** | **14** | **YES** |
| 6170 | 8.5"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 8.5 | NO |
| 6171 | 11.5"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 11.5 | YES |
| 6172 | 19"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 19 | YES |
| 6173 | 11"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 11 | YES |
| 6174 | 19"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 19 | YES |
| 6175 | 16.5"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 16.5 | YES |
| 6176 | 9"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 9 | NO |
| 6177 | 5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 5 | NO |
| 6178 | 5.5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 5.5 | NO |
| 6179 | 5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 5 | NO |
| 6180 | 4.5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 4.5 | NO |
| 6181 | 5.5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 5.5 | NO |
| 6182 | 4.5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 4.5 | NO |
| 6183 | 7"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7 | NO |
| 6184 | 10"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 10 | YES |
| 6185 | 4.5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 4.5 | NO |
| 6186 | 15"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 15 | YES |
| 6187 | 16"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 16 | YES |
| 6188 | 5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 5 | NO |
| 6189 | 14"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 14 | YES |
| 6190 | 9"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 9 | NO |
| 6191 | 5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Poor | 5 | NO |
| 6192 | 21"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 21 | YES |
| 6193 | 6"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 6 | NO |
| 6194 | 30"CO | SDE-TREE-S | 4 IN+ | 2 | Cottonwood | Fair | 30 | YES |
| 6195 | 15"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 15 | YES |
| 6196 | 18"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 18 | YES |
| 6197 | 8"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 8 | NO |
| 6198 | 17.5"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 17.5 | YES |
| 6199 | 14.5"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 14.5 | YES |
| 6200 | 4"BO | SDE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 4 | NO |
| 6201 | 18.5"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 18.5 | YES |
| 6202 | 19"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 19 | YES |
| 6203 | 22.5"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 22.5 | YES |
| 6204 | 27"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 27 | YES |
| 6205 | 8"BO | SDE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 8 | NO |
| **6206** | **22"FR** | **SDE-TREE-S** | **4 IN+** | **1** | **Cherry; black** | **Fair** | **22** | **YES** |
| 6207 | 7.5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7.5 | NO |
| 6208 | 5.5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 5.5 | NO |
| 6209 | 6"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 6 | NO |
| 6210 | 5.5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 5.5 | NO |
| 6211 | 9"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 9 | NO |
| 6212 | 5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 5 | NO |
| 6213 | 5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 5 | NO |
| 6214 | 6.5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 6.5 | NO |
| 6215 | 5.5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 5.5 | NO |
| 6216 | 6"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 6 | NO |
| 6217 | 7"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7 | NO |
| **6218** | **13"AS** | **SDE-TREE-S** | **4 IN+** | **1** | **Ash; green** | **Good** | **13** | **YES** |
| 6219 | 6"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 6 | NO |
| 6220 | 7.5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7.5 | NO |
| 6221 | 4"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 4 | NO |
| 6222 | 11"BO | SDE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 11 | YES |
| 6223 | 9"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 9 | NO |
| 6224 | 7.5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7.5 | NO |
| 6225 | 7.5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 7.5 | NO |
| 6226 | 6.5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 6.5 | NO |
| 6227 | 6"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 6 | NO |
| **6228** | **11.5"FR** | **SDE-TREE-S** | **4 IN+** | **1** | **Cherry; black** | **Good** | **11.5** | **YES** |
| 6229 | 5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 5 | NO |
| 6230 | 5.5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 5.5 | NO |
| 6231 | 7"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7 | NO |
| 6232 | 9"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 9 | NO |
| 6233 | 5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 5 | NO |
| 6234 | 6"FR | SDE-TREE-S | 4 IN+ | 1 | Cherry; black | Good | 6 | NO |
| 6235 | 8"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 8 | NO |
| 6236 | 7.5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7.5 | NO |
| 6237 | 5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 5 | NO |
| 6238 | 4.5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 4.5 | NO |
| 6239 | 7"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7 | NO |
| 6240 | 16"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 16 | YES |
| 6241 | 8.5"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 8.5 | NO |
| 6242 | 10.5"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 10.5 | YES |
| **6243** | **23.5"LO** | **SDE-TREE-S** | **4 IN+** | **1** | **Honeylocust** | **Fair** | **23.5** | **YES** |
| **6244** | **35"AS** | **SDE-TREE-S** | **4 IN+** | **1** | **Ash; green** | **Fair** | **35** | **YES** |
| **6245** | **19.5"AS** | **SDE-TREE-S** | **4 IN+** | **1** | **Ash; green** | **Good** | **19.5** | **YES** |
| 6246 | 5.5"BO | SDE-TREE-S | 4 IN+ | 1 | Boxelder | Poor | 5.5 | NO |
| 6247 | 10"BO | SDE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 10 | YES |
| 6248 | 7.5"BO | SDE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 7.5 | NO |
| 6249 | 11.5"BO | SDE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 11.5 | YES |
| 6250 | 10"BO | SDE-TREE-S | 4 IN+ | 1 | Boxelder | Poor | 10 | YES |
| 6252 | 6"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 6 | NO |
| 6253 | 6.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Poor | 6.5 | NO |
| 6254 | 11"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 11 | YES |
| 6255 | 5.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 5.5 | NO |
| 6256 | 8.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 8.5 | NO |
| 6257 | 6.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 6.5 | NO |
| 6258 | 4.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 4.5 | NO |
| 6259 | 32"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 32 | YES |
| 6260 | 28.5"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 28.5 | YES |
| 6261 | 7"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 7 | NO |

REMOVED "HIGH-PRIORITY" TREE (TYP.)

| Point Number | DESCRIPTION | REMOVED TREES "SDE" | > 4 INCH | Stems | Species | Condition | DBH | Significant "High Priority" Trees |
|---|---|---|---|---|---|---|---|---|
| 6262 | 14"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 14 | YES |
| 6263 | 5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 5 | NO |
| 6264 | 4"EL | SE-TREE-S | 4 IN+ | 1 | Elm; American | Good | 4 | NO |
| 6265 | 26"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 26 | YES |
| 6266 | 6.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 6.5 | NO |
| 6267 | 8"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Poor | 8 | NO |
| 6268 | 9.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 9.5 | YES |
| 6269 | 7.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7.5 | NO |
| 6270 | 8.5"BO | SE-TREE-S | 4 IN+ | 2 | Boxelder | Good | 8.5 | NO |
| 6271 | 8.5"WI | SE-TREE-S | 4 IN+ | 1 | Willow | Good | 8.5 | NO |
| 6272 | 7.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7.5 | NO |
| 6273 | 23.5"OA | SE-TREE-S | 4 IN+ | 1 | Oak; red | Good | 23.5 | YES |
| 6274 | 19.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 19.5 | YES |
| 6275 | 16"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 16 | YES |
| 6276 | 7"EL | SE-TREE-S | 4 IN+ | 1 | Elm; American | Good | 7 | NO |
| 6277 | 9"FR | SE-TREE-S | 4 IN+ | 1 | Cherry; black | Poor | 9 | NO |
| 6278 | 4"OA | SE-TREE-S | 4 IN+ | 1 | Oak; bur | Fair | 4 | NO |
| 6279 | 13.5"FR | SE-TREE-S | 4 IN+ | 1 | Cherry; black | Good | 13.5 | YES |
| 6280 | 8"OA | SE-TREE-S | 4 IN+ | 1 | Oak; bur | Good | 8 | NO |
| 6281 | 11"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Poor | 11 | YES |
| 6282 | 7.5"BA | SE-TREE-S | 4 IN+ | 1 | Basswood | Poor | 7.5 | NO |
| 6283 | 10"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 10 | YES |
| 6284 | 14"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Poor | 14 | YES |
| 6285 | 15"AS | SE-TREE-S | 4 IN+ | 2 | Ash; green | Good | 15 | YES |
| 6286 | 6.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 6.5 | NO |
| 6287 | 6"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 6 | NO |
| 6288 | 7.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7.5 | NO |
| 6289 | 32"OA | SE-TREE-S | 4 IN+ | 1 | Oak; red | Good | 32 | YES |
| 6290 | 10.5"FR | SE-TREE-S | 4 IN+ | 1 | Cherry; black | Fair | 10.5 | YES |
| 6291 | 27"OA | SE-TREE-S | 4 IN+ | 1 | Oak; red | Good | 27 | YES |
| 6292 | 16"BA | SE-TREE-S | 4 IN+ | 1 | Basswood | Fair | 16 | YES |
| 6293 | 12.5"TR | SE-TREE-S | 4 IN+ | 1 | Aspen | Poor | 12.5 | YES |
| 6294 | 5.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 5.5 | NO |
| 6295 | 8"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 8 | NO |
| 6296 | 14"

| Point Number | DESCRIPTION | REMOVED TREES "SDE" | > 4 INCH | Stems | Species | Condition | DBH | Significant "High Priority" Trees |
|---|---|---|---|---|---|---|---|---|
| 6393 | 8"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 8 | NO |
| 6394 | 8"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 8 | NO |
| 6395 | 8.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 8.5 | NO |
| 6396 | 25"OA | SE-TREE-S | 4 IN+ | 1 | Oak; bur | Good | 25 | YES |
| 6397 | 24.5"OA | SE-TREE-S | 4 IN+ | 1 | Oak; bur | Good | 24.5 | YES |
| 6398 | 8"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 8 | NO |
| 6399 | 6.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 6.5 | NO |
| 6400 | 11.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Poor | 11.5 | YES |
| 6401 | 28"OA | SE-TREE-S | 4 IN+ | 1 | Oak; bur | Good | 28 | YES |
| 6402 | 32"OA | SE-TREE-S | 4 IN+ | 1 | Oak; bur | Good | 32 | YES |
| 6403 | 11.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 11.5 | YES |
| 6404 | 60"OA | SE-TREE-S | 4 IN+ | 2 | Oak; bur | Good | 60 | YES |
| 6405 | 6"FR | SE-TREE-S | 4 IN+ | 1 | Cherry; black | Fair | 6 | NO |
| 6406 | 9.5"EL | SE-TREE-S | 4 IN+ | 1 | Elm; American | Good | 9.5 | YES |
| 6407 | 7"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7 | NO |
| 6408 | 7.5"EL | SE-TREE-S | 4 IN+ | 1 | Elm; American | Good | 7.5 | NO |
| 6409 | 30.5"OA | SE-TREE-S | 4 IN+ | 1 | Oak; bur | Good | 30.5 | YES |
| 6410 | 8"FR | SE-TREE-S | 4 IN+ | 1 | Cherry; black | Fair | 8 | NO |
| 6411 | 4"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 4 | NO |
| 6412 | 4.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 4.5 | NO |
| 6413 | 7"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 7 | NO |
| 6414 | 9"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 9 | NO |
| 6415 | 8.5"OA | SE-TREE-S | 4 IN+ | 1 | Oak; bur | Fair | 8.5 | NO |
| 6416 | 7.5"OA | SE-TREE-S | 4 IN+ | 1 | Oak; bur | Good | 7.5 | NO |
| 6417 | 7"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7 | NO |
| 6418 | 18"BA | SE-TREE-S | 4 IN+ | 2 | Basswood | Fair | 18 | YES |
| 6419 | 10"BA | SE-TREE-S | 4 IN+ | 1 | Basswood | Good | 10 | YES |
| 6420 | 22"BA | SE-TREE-S | 4 IN+ | 1 | Basswood | Good | 22 | YES |
| 6421 | 8.5"FR | SE-TREE-S | 4 IN+ | 1 | Cherry; black | Good | 8.5 | NO |
| 6422 | 9.5"FR | SE-TREE-S | 4 IN+ | 1 | Cherry; black | Good | 9.5 | YES |
| 6423 | 10"FR | SE-TREE-S | 4 IN+ | 1 | Cherry; black | Good | 10 | YES |
| 6424 | 6"FR | SE-TREE-S | 4 IN+ | 1 | Cherry; black | Poor | 6 | NO |
| 6425 | 5"OA | SE-TREE-S | 4 IN+ | 1 | Oak; pin | Fair | 5 | NO |
| 6426 | 4"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 4 | NO |
| 6427 | 16.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 16.5 | YES |
| 6428 | 12.5"TR | SE-TREE-S | 4 IN+ | 1 | Aspen | Poor | 12.5 | YES |
| 6429 | 13.5"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 13.5 | YES |
| 6430 | 8"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 8 | NO |
| 6431 | 8.5"BI | SE-TREE-S | 4 IN+ | 1 | Birch; paper | Fair | 8.5 | NO |
| 6432 | 5.5"EL | SE-TREE-S | 4 IN+ | 1 | Elm; American | Good | 5.5 | NO |
| 6433 | 26"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 26 | YES |
| 6434 | 12"OA | SE-TREE-S | 4 IN+ | 1 | Oak; bur | Good | 12 | YES |
| 6435 | 7"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7 | NO |
| 6436 | 7"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7 | NO |
| 6437 | 10"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 10 | YES |
| 6438 | 12"AS | SE-TREE-S | 4 IN+ | 2 | Ash; green | Good | 12 | YES |
| 6439 | 4"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 4 | NO |
| 6440 | 5.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 5.5 | NO |
| 6441 | 7"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7 | NO |
| 6442 | 8"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 8 | NO |
| 6443 | 8.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 8.5 | NO |
| 6444 | 7.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7.5 | NO |
| 6445 | 9.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 9.5 | YES |
| 6446 | 12"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 12 | YES |
| 6447 | 4"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 4 | NO |
| 6448 | 27.5"OA | SE-TREE-S | 4 IN+ | 1 | Oak; bur | Good | 27.5 | YES |
| 6449 | 7"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7 | NO |
| 6450 | 11"TR | SE-TREE-S | 4 IN+ | 1 | Aspen | Poor | 11 | YES |
| 6451 | 12.5"TR | SE-TREE-S | 4 IN+ | 1 | Aspen | Fair | 12.5 | YES |
| 6452 | 12"TR | SE-TREE-S | 4 IN+ | 1 | Aspen | Fair | 12 | YES |
| 6453 | 10.5"TR | SE-TREE-S | 4 IN+ | 1 | Aspen | Good | 10.5 | YES |
| 6454 | 5"FR | SE-TREE-S | 4 IN+ | 1 | Cherry; black | Good | 5 | NO |
| 6455 | 14.5"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 14.5 | YES |
| 6456 | 4"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 4 | NO |
| 6457 | 4.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 4.5 | NO |
| 6458 | 5.5"FR | SE-TREE-S | 4 IN+ | 1 | Cherry; black | Fair | 5.5 | NO |
| 6459 | 4.5"FR | SE-TREE-S | 4 IN+ | 1 | Cherry; black | Fair | 4.5 | NO |
| 6460 | 5.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 5.5 | NO |
| 6461 | 40"OA | SE-TREE-S | 4 IN+ | 1 | Oak; bur | Good | 40 | YES |
| 6462 | 10"FR | SE-TREE-S | 4 IN+ | 1 | Cherry; black | Good | 10 | YES |
| 6463 | 6"FR | SE-TREE-S | 4 IN+ | 1 | Cherry; black | Good | 6 | NO |
| 6464 | 8.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 8.5 | NO |
| 6465 | 7.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7.5 | NO |
| 6466 | 30.5"OA | SE-TREE-S | 4 IN+ | 1 | Oak; bur | Good | 30.5 | YES |
| 6467 | 24"OA | SE-TREE-S | 4 IN+ | 1 | Oak; bur | Good | 24 | YES |
| 6468 | 5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 5 | NO |
| 6469 | 9.5"FR | SE-TREE-S | 4 IN+ | 1 | Cherry; black | Good | 9.5 | YES |
| 6470 | 11"FR | SE-TREE-S | 4 IN+ | 1 | Cherry; black | Good | 11 | YES |
| 6471 | 25"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 25 | YES |
| 6472 | 11"AS | SE-TREE-S | 4 IN+ | 2 | Ash; green | Fair | 11 | YES |
| 6473 | 8.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 8.5 | NO |
| 6474 | 10.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 10.5 | YES |
| 6475 | 10.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 10.5 | YES |
| 6476 | 5.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 5.5 | NO |
| 6477 | 5.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 5.5 | NO |
| 6478 | 9.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 9.5 | YES |
| 6479 | 8.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 8.5 | NO |
| 6480 | 9.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 9.5 | YES |
| 6481 | 7.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7.5 | NO |
| 6482 | 7"FR | SE-TREE-S | 4 IN+ | 1 | Cherry; black | Good | 7 | NO |
| 6483 | 5"OA | SE-TREE-S | 4 IN+ | 1 | Oak; bur | Good | 5 | NO |
| 6484 | 11"OA | SE-TREE-S | 4 IN+ | 1 | Oak; red | Good | 11 | YES |
| 6485 | 14.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 14.5 | YES |
| 6486 | 4"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 4 | NO |
| 6487 | 14"FR | SE-TREE-S | 4 IN+ | 1 | Cherry; black | Fair | 14 | YES |
| 6488 | 17.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 17.5 | YES |
| 6489 | 7.5"OA | SE-TREE-S | 4 IN+ | 1 | Oak; bur | Good | 7.5 | NO |
| 6490 | 10"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 10 | YES |
| 6491 | 14.5"FR | SE-TREE-S | 4 IN+ | 1 | Cherry; black | Good | 14.5 | YES |
| 6492 | 10"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 10 | YES |
| 6493 | 7"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7 | NO |
| 6494 | 6.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 6.5 | NO |
| 6495 | 23"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 23 | YES |
| 6496 | 4"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Poor | 4 | NO |
| 6497 | 5.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 5.5 | NO |
| 6498 | 9.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 9.5 | YES |
| 6499 | 6.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 6.5 | NO |
| 6500 | 4.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 4.5 | NO |
| 6501 | 15.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 15.5 | YES |
| 6502 | 14"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 14 | YES |
| 6503 | 19"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 19 | YES |
| 6504 | 9.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 9.5 | YES |
| 6505 | 6"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 6 | NO |
| 6506 | 13"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Poor | 13 | YES |
| 6507 | 13"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 13 | YES |
| 6508 | 9.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 9.5 | YES |
| 6509 | 5"FR | SE-TREE-S | 4 IN+ | 1 | Cherry; black | Poor | 5 | NO |
| 6510 | 34.5"OA | SE-TREE-S | 4 IN+ | 1 | Oak; bur | Poor | 34.5 | YES |
| 6511 | 7"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 7 | NO |
| 6512 | 7"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 7 | NO |
| 6513 | 4"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 4 | NO |
| 6514 | 4"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 4 | NO |
| 6515 | 13"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 13 | YES |
| 6516 | 5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 5 | NO |
| 6517 | 9"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 9 | NO |
| 6518 | 4.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Poor | 4.5 | NO |
| 6519 | 6"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 6 | NO |
| 6520 | 5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 5 | NO |
| 6521 | 9"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 9 | NO |
| 6522 | 14"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 14 | YES |
| 6523 | 16"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 16 | YES |
| 6524 | 26"BO | SE-TREE-S | 4 IN+ | 3 | Boxelder | Poor | 26 | YES |
| 6525 | 9.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 9.5 | YES |
| 6526 | 11.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 11.5 | YES |
| 6527 | 8"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 8 | NO |
| 6528 | 7"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 7 | NO |
| 6529 | 7"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 7 | NO |
| 6530 | 6.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 6.5 | NO |
| 6531 | 9"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 9 | NO |
| 6532 | 19"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 19 | YES |
| 6533 | 16.5"BO | SE-TREE-S | 4 IN+ | 2 | Boxelder | Fair | 16.5 | YES |
| 6534 | 44"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 44 | YES |
| 6535 | 21"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Poor | 21 | YES |
| 6536 | 12"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 12 | YES |
| 6537 | 7"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7 | NO |
| 6538 | 6"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 6 | NO |
| 6539 | 15"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 15 | YES |
| 6540 | 9.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 9.5 | YES |
| 6541 | 5.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 5.5 | NO |
| 6542 | 13"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 13 | YES |
| 6543 | 19"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 19 | YES |
| 6544 | 6.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 6.5 | NO |
| 6545 | 16.5"OA | SE-TREE-S | 4 IN+ | 1 | Oak; bur | Good | 16.5 | YES |
| 6546 | 21"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 21 | YES |
| 6547 | 9.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 9.5 | YES |
| 6548 | 20"OA | SE-TREE-S | 4 IN+ | 1 | Oak; bur | Good | 20 | YES |
| 6549 | 9.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 9.5 | YES |
| 6550 | 5.5"FR | SE-TREE-S | 4 IN+ | 1 | Cherry; black | Good | 5.5 | NO |
| 6551 | 25"OA | SE-TREE-S | 4 IN+ | 2 | Oak; bur | Good | 25 | YES |
| 6552 | 12.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 12.5 | YES |
| 6553 | 6"FR | SE-TREE-S | 4 IN+ | 1 | Cherry; black | Good | 6 | NO |
| 6554 | 11"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 11 | YES |
| 6555 | 8"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 8 | NO |
| 6556 | 9.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 9.5 | YES |
| 6557 | 12"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 12 | YES |
| 6558 | 12"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Poor | 12 | YES |
| 6559 | 14"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 14 | YES |
| 6560 | 21"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 21 | YES |
| 6561 | 9"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 9 | NO |
| 6562 | 9"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 9 | NO |
| 6563 | 15"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Poor | 15 | YES |
| 6564 | 17.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 17.5 | YES |
| 6565 | 8.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 8.5 | NO |
| 6566 | 49"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 49 | YES |
| 6567 | 5.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 5.5 | NO |
| 6568 | 8"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 8 | NO |
| 6569 | 4.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 4.5 | NO |
| 6570 | 9"WI | SE-TREE-S | 4 IN+ | 1 | Willow | Poor | 9 | NO |
| 6571 | 26"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 26 | YES |
| 6572 | 34.5"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 34.5 | YES |
| 6573 | 31"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 31 | YES |
| 6574 | 24"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 24 | YES |
| 6575 | 31"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Poor | 31 | YES |
| **6577** | **14"SP** | **SDE-TREE-S** | **4 IN+** | **1** | **Spruce; blue** | **Poor** | **14** | **YES** |
| **6578** | **16"SP** | **SDE-TREE-S** | **4 IN+** | **1** | **Spruce; blue** | **Fair** | **16** | **YES** |
| 6580 | 7"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7 | NO |
| 6581 | 12"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 12 | YES |
| 6582 | 9"AS | SE-TREE-S | 4 IN+ | 2 | Ash; green | Fair | 9 | NO |
| 6583 | 13"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 13 | YES |
| 6584 | 8"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 8 | NO |
| 6585 | 8.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 8.5 | NO |
| 6586 | 10"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 10 | YES |
| 6587 | 10"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 10 | YES |
| 6588 | 11"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 11 | YES |
| 6589 | 8.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 8.5 | NO |
| 6590 | 6"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 6 | NO |
| **6591** | **19.5"SP** | **SDE-TREE-S** | **4 IN+** | **1** | **Spruce; white** | **Fair** | **19.5** | **YES** |
| 6592 | 7"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7 | NO |
| 6593 | 10"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 10 | YES |
| 6594 | 6"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Poor | 6 | NO |
| 6595 | 14"EL | SE-TREE-S | 4 IN+ | 1 | Elm; American | Good | 14 | YES |
| 6596 | 14"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 14 | YES |
| **6597** | **17"SP** | **SDE-TREE-S** | **4 IN+** | **1** | **Spruce; white** | **Fair** | **17** | **YES** |
| 6598 | 17.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 17.5 | YES |
| 6599 | 17"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 17 | YES |
| 6600 | 14.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 14.5 | YES |
| 6602 | 17.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 17.5 | YES |
| 6603 | 8.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 8.5 | NO |
| 6604 | 13.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 13.5 | YES |
| 6605 | 9"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 9 | NO |
| 6606 | 11.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 11.5 | YES |
| 6608 | 9.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 9.5 | YES |
| 6609 | 26"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Poor | 26 | YES |
| 6610 | 14.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 14.5 | YES |
| 6611 | 25"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 25 | YES |
| 6612 | 22"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 22 | YES |
| 6613 | 16"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 16 | YES |
| 6614 | 4"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 4 | NO |
| 6615 | 16"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 16 | YES |
| 6616 | 4"EL | SE-TREE-S | 4 IN+ | 1 | Elm; American | Good | 4 | NO |
| 6617 | 5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 5 | NO |
| 6618 | 4"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 4 | NO |
| 6619 | 4.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 4.5 | NO |
| 6620 | 8.5"BO | SDE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 8.5 | NO |
| **6621** | **13"AS** | **SDE-TREE-S** | **4 IN+** | **1** | **Ash; green** | **Fair** | **13** | **YES** |
| 6622 | 24.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Poor | 24.5 | YES |
| 6623 | 48"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 48 | YES |
| **6624** | **40.5"OA** | **SDE-TREE-S** | **4 IN+** | **1** | **Oak; bur** | **Good** | **40.5** | **YES** |
| 6625 | 23"CO | SDE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 23 | YES |
| **6626** | **10"AS** | **SDE-TREE-S** | **4 IN+** | **1** | **Ash; green** | **Good** | **10** | **YES** |
| 6627 | 8"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 8 | NO |
| 6628 | 7.5"AS | SDE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7.5 | NO |
| **6629** | **10.5"AS** | **SDE-TREE-S** | **4 IN+** | **1** | **Ash; green** | **Good** | **10.5** | **YES** |
| **6630** | **23"BA** | **SDE-TREE-S** | **4 IN+** | **1** | **Baswood** | **Good** | **23** | **YES** |
| 6631 | 19"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Poor | 19 | YES |
| 6632 | 17"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 17 | YES |
| 6633 | 10.5"EL | SE-TREE-S | 4 IN+ | 1 | Elm; American | Good | 10.5 | YES |
| 6634 | 8"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 8 | NO |
| 6635 | 7"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 7 | NO |
| 6636 | 50"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 50 | YES |
| 6637 | 5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 5 | NO |
| 6638 | 8.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 8.5 | NO |
| 6639 | 11"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 11 | YES |
| 6640 | 4.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 4.5 | NO |
| 6641 | 9"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 9 | NO |
| 6642 | 13.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 13.5 | YES |
| 6643 | 7"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7 | NO |
| 6644 | 8"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 8 | NO |
| 6645 | 16"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 16 | YES |
| 6646 | 7"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 7 | NO |
| 6647 | 10.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 10.5 | YES |
| 6648 | 8"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 8 | NO |
| 6649 | 19"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 19 | YES |
| 6650 | 14"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 14 | YES |
| 6651 | 6.5"EL | SE-TREE-S | 4 IN+ | 1 | Elm; American | Good | 6.5 | NO |
| 6652 | 25"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 25 | YES |
| 6653 | 13.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 13.5 | YES |
| 6654 | 10.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 10.5 | YES |
| 6655 | 33.5"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 33.5 | YES |
| 6656 | 20"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 20 | YES |
| 6657 | 27"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 27 | YES |
| 6658 | 36"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 36 | YES |
| 6659 | 25"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 25 | YES |
| 6660 | 11"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 11 | YES |
| 6661 | 53"BO | SE-TREE-S | 4 IN+ | 5 | Boxelder | Poor | 53 | YES |
| 6662 | 5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Fair | 5 | NO |
| 6663 | 28"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 28 | YES |
| 6664 | 15"AS | SE-TREE-S | 4 IN+ | 2 | Ash; green | Fair | 15 | YES |
| 6665 | 8.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 8.5 | NO |
| 6666 | 10.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 10.5 | YES |
| 6667 | 10.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 10.5 | YES |
| 6668 | 9"EL | SE-TREE-S | 4 IN+ | 1 | Elm; American | Good | 9 | NO |
| 6669 | 9.5"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 9.5 | YES |
| 6670 | 27"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Fair | 27 | YES |
| 6671 | 35"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 35 | YES |
| 6672 | 26"FR | SE-TREE-S | 4 IN+ | 1 | Cherry; black | Good | 26 | YES |
| 6673 | 25.5"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 25.5 | YES |
| 6674 | 19"EL | SE-TREE-S | 4 IN+ | 1 | Elm; Siberian | Good | 19 | YES |
| 6675 | 16.5"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 16.5 | YES |
| 6676 | 22"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 22 | YES |
| 6677 | 20"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 20 | YES |
| 6678 | 34"CO | SE-TREE-S | 4 IN+ | 2 | Cottonwood | Good | 34 | YES |
| 6679 | 10.5"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 10.5 | YES |
| 6680 | 32"CO | SE-TREE-S | 4 IN+ | 1 | Cottonwood | Good | 32 | YES |
| 6681 | 12"BO | SE-TREE-S | 4 IN+ | 2 | Boxelder | Fair | 12 | YES |
| 6682 | 5.5"BO | SE-TREE-S | 4 IN+ | 1 | Boxelder | Good | 5.5 | NO |
| 6683 | 21"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 21 | YES |
| 6684 | 18"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 18 | YES |
| 6685 | 18"SP | SE-TREE-S | 4 IN+ | 1 | Spruce; blue | Fair | 18 | YES |
| 6686 | 11.5"SP | SE-TREE-S | 4 IN+ | 1 | Spruce; white | Fair | 11.5 | YES |
| 6687 | 8"FR | SE-TREE-S | 4 IN+ | 1 | Crabapple | Good | 8 | NO |
| 6688 | 25"AS | SE-TREE-S | 4 IN+ | 1 | Ash; green | Good | 25 | YES |
| 6689 | 16"SP | SE-TREE-S | 4 IN+ | 1 | Spruce; white | Fair | 16 | YES |
| **6690** | **36"OA** | **SDE-TREE-S** | **4 IN+** | **1** | **Oak; red** | **Poor** | **36** | **YES** |
| **6691** | **32"BA** | **SDE-TREE-S** | **4 IN+** | **1** | **Basswood** | **Poor** | **32** | **YES** |
| **6692** | **13.5"BA** | **SDE-TREE-S** | **4 IN+** | **1** | **Basswood** | **Fair** | **13.5** | **YES** |
| **6693** | **16.5"BA** | **SDE-TREE-S** | **4 IN+** | **1** | **Basswood** | **Good** | **16.5** | **YES** |
| **6694** | **16.5"BA** | **SDE-TREE-S** | **4 IN+** | **1** | **Basswood** | **Fair** | **16.5** | **YES** |
| **6695** | **17"OA** | **SDE-TREE-S** | **4 IN+** | **1** | **Oak; bur** | **Fair** | **17** | **YES** |
| **6696** | **27"OA** | **SDE-TREE-S** | **4 IN+** | **1** | **Oak; bur** | **Fair** | **27** | **YES** |
| **6697** | **20.5"BA** | **SDE-TREE-S** | **4 IN+** | **1** | **Basswood** | **Fair** | **20.5** | **YES** |
| **6698** | **17"OA** | **SDE-TREE-S** | **4 IN+** | **1** | **Oak; bur** | **Good** | **17




LANDSCAPE CACULATIONS: [redacted]

FOR PROJECTS OVER $4,000,000 THE MINIMUM LANDSCAPE VALUE IS TO BE 1% OF THE TOTAL

TOTAL ESTIMATED PROJECT VALUE: $32 MILLION
ESTIMATED LANDSCAPE VALUE REQUIRED: $320,000

ESTIMATED LANDSCAPE VALUE PROVIDED: $326,800 (SEE CHART BELOW)

## MINIMUM LANDSCAPE VALUE COST OPINION

REQUIRED MINIMUM LANDSCAPE VALUE: 1% OF PROJECT VALUE = $320,000

| | |
|---|---|
| OVERSTORY TREES (75 TREES X $600) | $45,000 |
| CONIFEROUS TREES (24 TREES X $500) | $12,000 |
| ORNAMENTAL TREES (31 TREES X $400) | $12,400 |
| FOUNDATION PLANTINGS - 250 x $60 | $15,000 |
| SOD | $29,000 |
| NATIVE SEED | $20,000 |
| IRRIGATION | $50,000 |
| COURTYARD AMENITIES | $150,000 |
| TOTAL | $333,400 |

## PLANT SCHEDULE

| DECIDUOUS TREES | CODE | QTY | COMMON NAME | BOTANICAL NAME | CONT | SIZE | SIZE |
|---|---|---|---|---|---|---|---|
| | AB | 5 | AUTUMN BLAZE MAPLE | Acer freemanii 'Autumn Blaze' | B & B | 2.5"Cal | |
| | CH | 3 | COMMON HACKBERRY | Celtis occidentalis | B & B | 2.5"Cal | |
| | GB | 8 | GINKGO TREE | Ginkgo biloba | B & B | 2.5"Cal | |
| | GL | 6 | GREENSPIRE LINDEN | Tilia cordata 'Greenspire' | B & B | 2.5"Cal | |
| | KC | 4 | KENTUCKY COFFEETREE | Gymnocladus dioica | B & B | 2.5"Cal | |
| | PE | 11 | PRINCETON ELM | Ulmus americana 'Princeton' | B & B | 2.5"Cal | |
| | RO | 21 | RED OAK | Quercus rubra | B & B | 2.5"Cal | |
| | SKH | 3 | SKYLINE HONEYLOCUST | Gleditsia triacanthos 'Skycole' | B & B | 2.5"Cal | |
| | QB | 3 | SWAMP WHITE OAK | Quercus bicolor | B & B | 2.5"Cal | |
| | WB | 9 | WHITESPIRE BIRCH | Betula populifolia 'Whitespire Sr.' | B & B | | 8' HGT |
| EVERGREEN TREES | CODE | QTY | COMMON NAME | BOTANICAL NAME | CONT | SIZE | SIZE |
| | AP | 6 | AUSTRIAN PINE | Pinus nigra | B & B | | 6' HGT |
| | CSP | 13 | COLORADO SPRUCE | Picea pungens | B & B | | 6' HGT |
| | DF | 5 | DOUGLAS FIR | Pseudotsuga menziesii | B & B | | 6' HGT |
| ORNAMENTAL TREES | CODE | QTY | COMMON NAME | BOTANICAL NAME | CONT | SIZE | SIZE |
| | IL | 8 | IVORY SILK TREE LILAC | Syringa reticulata 'Ivory Silk' | B & B | 1.5"Cal | |
| | SS | 23 | SPRING SNOW CRABAPPLE | Malus x 'Spring Snow' | B & B | 1.5"Cal | |
| GROUND COVERS | CODE | QTY | COMMON NAME | BOTANICAL NAME | | | |
| | Hwm | 1,381 sf | HARDWOOD MULCH | | | | |
| | Seed 3 | 7,895 | NATIVE SEED MIX | | | | |
| | SM 1 | 143 sf | STONE MULCH | | | | |
| | SOD | 6,603 sf | TURF SOD | | | | |

NOTE: FOUNDATION PLANTING DESIGN WILL BE INCLUDED IN THE PROJECT'S PERMIT SET SUBMITTAL.

GENERAL NOTES: [redacted]

CONTRACTOR SHALL VISIT SITE PRIOR TO SUBMITTING BID. CONTRACTOR SHALL INSPECT SITE AND BECOME FAMILIAR WITH EXISTING CONDITIONS RELATING TO THE NATURE AND SCOPE OF WORK.

VERIFY LAYOUT AND ANY DIMENSIONS SHOWN AND BRING TO THE ATTENTION OF THE LANDSCAPE ARCHITECT ANY DISCREPANCIES WHICH MAY COMPROMISE THE DESIGN AND/OR INTENT OF THE PROJECT'S LAYOUT.

ASSURE COMPLIANCE WITH ALL APPLICABLE CODES AND REGULATIONS GOVERNING THE WORK OR MATERIALS SUPPLIED.

CONTRACTOR SHALL PROTECT ALL EXISTING ROADS, CURBS/GUTTERS, TRAILS, TREES, LAWNS AND SITE ELEMENTS DURING PLANTING OPERATIONS. ANY DAMAGE TO SAME SHALL BE REPAIRED AT NO COST TO THE OWNER.

CONTRACTOR SHALL VERIFY ALIGNMENT AND LOCATION OF ALL UNDERGROUND AND ABOVE GRADE UTILITIES. CONTRACTOR TO PROVIDE THE NECESSARY PROTECTION FOR THE UTILITIES BEFORE CONSTRUCTION / MATERIAL INSTALLATION BEGINS. CONTRACTOR TO NOTIFY GENERAL CONTRACTOR OF ANY CONCERNS PRIOR TO INSTALLATION OF PLANTINGS.

EXISTING CONTOURS, TRAILS, VEGETATION, CURB/GUTTER AND OTHER EXISTING ELEMENTS BASED UPON INFORMATION SUPPLIED TO LANDSCAPE ARCHITECT BY OTHERS. CONTRACTOR SHALL VERIFY ANY AND ALL DISCREPANCIES PRIOR TO CONSTRUCTION AND NOTIFY LANDSCAPE ARCHITECT OF SAME.

THE ALIGNMENT AND GRADES OF THE PROPOSED WALKS, TRAILS AND/OR ROADWAYS ARE SUBJECT TO FIELD ADJUSTMENT REQUIRED TO CONFORM TO LOCALIZED TOPOGRAPHIC CONDITIONS AND TO MINIMIZE TREE REMOVAL AND GRADING. ANY CHANGE IN ALIGNMENT MUST BE APPROVED BY LANDSCAPE ARCHITECT.

CALL BEFORE YOU DIG!
Gopher State One Call
TWIN CITY AREA: 651-454-0002
TOLL FREE: 1-800-252-1166

**WARNING:**

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND / OR RELOCATION OF LINES.

THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL AT 651-454-0002 AT LEAST 48 HOURS IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

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SCALE IN FEET

# MINNETONKA SENIOR APARTMENTS

MINNETONKA, MN


GRECO
607 WASHINGTON AVE. N. SUITE 100
MINNEAPOLIS, MN 55401

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Maple Grove, MN 55369
763.424.5505
www.loucksinc.com


**CADD QUALIFICATION**

CADD files prepared by the Consultant for this project are instruments of the Consultant professional services for use solely with respect to this project. These CADD files shall not be used on other projects, for additions to this project, or for completion of this project by others without written approval by the Consultant. The Consultant grants no permission for CADD files permitted to obtain copies of the CADD drawing files for information and reference only. All intentional or unintentional revisions, additions, or deletions to these CADD files shall be made at the full risk of that party making such revisions, additions or deletions and that party shall hold harmless and indemnify the Consultant from any & all responsibilities, claims, and liabilities.

**SUBMITTAL/REVISIONS**

10/18/23 C TY SUBM TTAL

**PROFESSIONAL SIGNATURE**

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Landscape Architect under the laws of the State of Minnesota.

Douglas D. Loken - LA
License No. 45591
Date -

**QUALITY CONTROL**

| | |
|---|---|
| Loucks Project No. | 23055A |
| Project Lead | PJD |
| Drawn By | DDL |
| Checked By | DDL |
| Review Date | 10/18/23 |

| | |
|---|---|
| C1-1 | DEMOLITION PLAN |
| C2-1 | SITE PLAN |
| C3-1 | GRADING PLAN |
| C3-2 | SWPPP |
| C3-3 | SWPPP NOTES |
| C4-1 | WATER MAIN AND SANITARY |
| C4-2 | STORM SEWER |
| C8-1 | CIVIL DETAILS |
| C8-2 | CIVIL DETAILS |
| C8-3 | CIVIL DETAILS |
| L1-1 | TREE INVENTORY PLAN |
| L1-2 | TREE INVENTORY PLAN |
| L1-3 | TREE INVENTORY DETAILS |
| L1-4 | TREE INVENTORY DETAILS |
| L1-5 | LANDSCAPE PLAN |
| L1-6 | LANDSCAPE DETAILS |

# LANDSCAPE PLAN

# L1-5

Plotted: 10 /18 /2023 10:49 AM W:\2023\23055A\CADD DATA\LANDSCAPE\ dwg Sheet Files\L1-5 - LANDSCAPE PLAN

## LANDSCAPE INSTALLATION:

GENERAL NOTES

COORDINATE THE PHASES OF CONSTRUCTION AND PLANTING INSTALLATION WITH OTHER CONTRACTORS WORKING ON SITE.

NO PLANTING WILL BE INSTALLED UNTIL COMPLETE GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.

ALL PLANTS TO BE INSTALLED AS PER PLANTING DETAILS. REMOVE ALL FLAGGING AND LABELS FROM PLANTS.

IF THE LANDSCAPE CONTRACTOR IS CONCERNED OR PERCEIVES ANY DEFICIENCIES IN THE PLANT SELECTIONS, SOIL CONDITIONS OR ANY OTHER SITE CONDITION WHICH MIGHT NEGATIVELY AFFECT PLANT ESTABLISHMENT, SURVIVAL OR GUARANTEE, HE MUST BRING THESE DEFICIENCIES TO THE ATTENTION OF THE LANDSCAPE ARCHITECT PRIOR TO PROCUREMENT AND/OR INSTALLATION.

PROTECT ALL EXISTING TREES ON SITE SCHEDULED TO REMAIN. IF EXISTING TREES ARE DAMAGED IN ANY MANNER, ABOVE OR BELOW GROUND IN THE ROOT SYSTEM, AN ASPHALTIC TREE PRUNING PAINT SHOULD BE APPLIED IMMEDIATELY AFTER WOUNDING.

SOIL & GROUNDCOVER

ALL PLANTING AREAS RECEIVING GROUND COVER PLANTS, PERENNIALS, ANNUALS, AND/OR VINES SHALL RECEIVE A MINIMUM OF 24" DEPTH OF PLANTING SOIL (MNDOT 3877 - 2B OR EQUAL).

WHERE SOD/SEED ABUTS PAVED SURFACES, FINISHED GRADE OF SOD/SEED SHALL BE HELD 1" BELOW SURFACE ELEVATION OF TRAIL, SLAB, CURB, ETC. AND INSTALLED OVER A MIN. 4" TOPSOIL CLEAR OF STONES, ROOTS, GRASS, WEEDS, DEBRIS, AND OTHER FOREIGN NON-ORGANIC MATERIAL.

SOD ALL DESIGNATED AREAS DISTURBED DUE TO GRADING. SOD SHALL BE LAID PARALLEL TO THE CONTOURS AND SHALL HAVE STAGGERED JOINTS. ON SLOPES STEEPER THAN 3:1 OR IN DRAINAGE SWALES, THE SOD SHALL BE STAKED TO THE GROUND.

LANDSCAPE CONTRACTOR SHALL VERIFY THAT SOIL AND COMPACTION CONDITIONS ARE ADEQUATE TO ALLOW FOR PROPER DRAINAGE AT AND AROUND THE BUILDING SITE.

PLANTINGS INFO

ALL PLANT MATERIAL SHALL COMPLY WITH THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, AMERICAN ASSOCIATION OF NURSERYMEN. UNLESS NOTED OTHERWISE, ALL SHRUBS SHALL HAVE AT LEAST 5 CANES AT THE SPECIFIED MINIMUM SHRUB HEIGHT OR WIDTH. ORNAMENTAL TREES SHALL HAVE NO V CROTCHES AND SHALL BEGIN BRANCHING NO LOWER THAN 3' ABOVE ROOT BALL. STREET AND BOULEVARD TREES SHALL BEGIN BRANCHING NO LOWER THAN 5' ABOVE FINISHED GRADE.

ANY CONIFEROUS TREE PREVIOUSLY PRUNED FOR CHRISTMAS TREE SALES SHALL NOT BE USED. ALL CONIFEROUS TREES SHALL BE FULL FORM, NATURAL TO THE SPECIES, WITHOUT PRUNING.

PRIOR TO PLANTING, FIELD VERIFY THAT THE ROOT COLLAR/ROOT FLAIR IS LOCATED AT THE TOP OF THE BALLED & BURLAP TREE. IF THIS IS NOT THE CASE, SOIL SHALL BE REMOVED DOWN TO THE ROOT COLLAR/ROOT FLAIR. WHEN THE BALLED & BURLAP TREE IS PLANTED, THE ROOT COLLAR/ROOT FLAIR SHALL BE EVEN OR SLIGHTLY ABOVE FINISHED GRADE.

ALL PROPOSED PLANTS SHALL BE LOCATED AND STAKED AS SHOWN ON PLAN. ADJUSTMENTS IN LOCATION OF PROPOSED PLANT MATERIALS MAY BE NEEDED IN FIELD, SHOULD AN ADJUSTMENT BE ADVISED, THE LANDSCAPE ARCHITECT MUST BE NOTIFIED.

PLAN TAKES PRECEDENCE OVER PLANT SCHEDULE IF DISCREPANCIES IN QUANTITIES EXIST. SPECIFICATIONS TAKE PRECEDENCE OVER NOTES.

NO PLANT MATERIAL SUBSTITUTIONS WILL BE ACCEPTED UNLESS APPROVAL IS REQUESTED OF THE LANDSCAPE ARCHITECT BY THE LANDSCAPE CONTRACTOR PRIOR TO THE SUBMISSION OF A BID AND/OR QUOTATION.

WRAPPING MATERIAL SHALL BE CORRUGATED PVC PIPING 1" GREATER IN CALIPER THAN THE TREE BEING PROTECTED OR QUALITY, HEAVY, WATERPROOF CREPE PAPER MANUFACTURED FOR THIS PURPOSE. WRAP ALL DECIDUOUS TREES PLANTED IN THE FALL PRIOR TO 12-1 AND REMOVE ALL WRAPPING AFTER 5-1.

FERTILIZER

ALL PLANT MATERIALS SHALL BE FERTILIZED UPON INSTALLATION WITH A 27-3-3 SLOW RELEASE FERTILIZER MIXED IN WITH THE PLANTING SOIL PER THE MANUFACTURER'S INSTRUCTIONS. PLANTS MAY BE TREATED FOR SUMMER AND FALL INSTALLATION WITH AN APPLICATION OF GRANULAR 27-3-3 AT 6 OZ PER 2.5" CALIPER PER TREE AND 3 OZ PER SHRUB WITH AN ADDITIONAL APPLICATION OF 27-3-3 THE FOLLOWING SPRING IN THE TREE SAUCER.

EDGING FOR PLANTING BEDS

BLACK METAL EDGER TO BE USED TO CONTAIN SHRUBS, PERENNIALS, AND ANNUALS WHERE BED MEETS SOD/SEED UNLESS NOTED OTHERWISE.

PLANTING BED PREPARATION

ALL ANNUAL AND PERENNIAL PLANTING BEDS TO RECEIVE 3" DEEP SHREDDED HARDWOOD MULCH WITH NO WEED BARRIER.

ALL SHRUB BED MASSINGS TO RECEIVE 3" DEEP SHREDDED HARDWOOD MULCH AND FIBER MAT WEED BARRIER.

ALL TREES NOT IN PLANTING BEDS TO RECEIVE 4" DEEP SHREDDED HARDWOOD MULCH RING WITH NO MULCH IN DIRECT CONTACT WITH TREE TRUNK.

SPREAD GRANULAR PRE EMERGENT HERBICIDE (PREEN OR EQUAL) PER MANUFACTURER'S RECOMMENDATIONS UNDER ALL MULCHED AREAS.

MAINTENANCE STRIPS TO HAVE EDGER AND MULCH AS SPECIFIED/INDICATED ON DRAWING OR IN SPECIFICATION.

INSPECTION AND WARRANTY

CONTRACTOR SHALL SUBMIT A WRITTEN REQUEST FOR THE OWNER ACCEPTANCE INSPECTION OF ALL LANDSCAPE AND SITE IMPROVEMENTS.

CONTRACTOR IS RESPONSIBLE FOR ON-GOING MAINTENANCE OF ALL NEWLY INSTALLED MATERIALS UNTIL TIME OF OWNER ACCEPTANCE. ANY ACTS OF VANDALISM OR DAMAGE WHICH MAY OCCUR PRIOR TO OWNER ACCEPTANCE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL PROVIDE THE OWNER WITH A MAINTENANCE PROGRAM INCLUDING, BUT NOT NECESSARILY LIMITED TO, PRUNING, FERTILIZATION AND DISEASE/PEST CONTROL.

CONTRACTOR SHALL GUARANTEE NEW PLANT MATERIAL THROUGH ONE CALENDAR YEAR FROM THE DATE OF OWNER ACCEPTANCE.

WARRANTY (ONE FULL GROWING SEASON) FOR LANDSCAPE MATERIALS SHALL BEGIN ON THE DATE OF ACCEPTANCE BY THE LANDSCAPE ARCHITECT AFTER THE COMPLETION OF PLANTING OF ALL LANDSCAPE MATERIALS. NO PARTIAL ACCEPTANCE WILL BE CONSIDERED.

TIMING OF INSTALLATION

UNLESS NOTED OTHERWISE THE APPROPRIATE DATES FOR SPRING PLANT MATERIAL INSTALLATION AND SEED/SOD PLACEMENT IS FROM THE TIME GROUND HAS THAWED TO JUNE 15.

FALL SODDING IS GENERALLY ACCEPTABLE FROM AUGUST 15 - NOVEMBER 1. FALL SEEDING FROM AUGUST 15 - SEPTEMBER 15; DORMANT SEEDING IN THE FALL SHALL NOT OCCUR PRIOR TO NOVEMBER 1. FALL CONIFEROUS PLANTING MAY OCCUR FROM AUGUST 15 - OCTOBER 1 AND DECIDUOUS PLANTING FROM THE FIRST FROST UNTIL NOVEMBER 15. PLANTING OUTSIDE THESE DATES IS NOT RECOMMENDED. ANY ADJUSTMENT MUST BE APPROVED IN WRITING BY THE LANDSCAPE ARCHITECT.

TREES ARE NOT TO BE PRUNED, REMOVED OR TRANSPLANTED BETWEEN APRIL 15 AND JULY 1. NOTIFY LANDSCAPE ARCHITECT IF THESE DATES ARE UNAVOIDABLE.

IRRIGATION NOTES:

VERIFY EXISTING/PROPOSED IRRIGATION SYSTEM LAYOUT AND CONFIRM COMPLETE LIMITS OF IRRIGATION PRIOR TO SUPPLYING SHOP DRAWINGS.

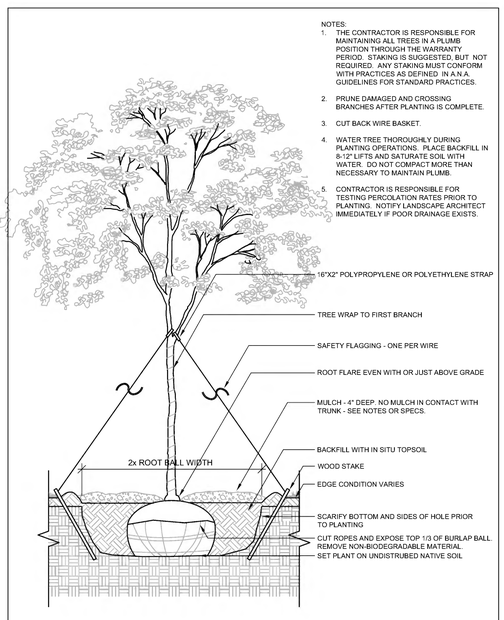
LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AN IRRIGATION LAYOUT PLAN AND SPECIFICATION AS A PART OF THE SCOPE OF WORK WHEN BIDDING. THESE SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO ORDER AND/OR INSTALLATION. IT SHALL BE THE LANDSCAPE CONTRACTORS RESPONSIBILITY TO INSURE THAT ALL SODDED/SEEDED AND PLANTED AREAS ARE IRRIGATED PROPERLY, INCLUDING THOSE AREAS DIRECTLY AROUND AND ABUTTING BUILDING FOUNDATION.

THE LANDSCAPE CONTRACTOR SHALL PROVIDE THE OWNER WITH AN IRRIGATION SCHEDULE APPROPRIATE TO THE PROJECT SITE CONDITIONS AND TO PLANT MATERIAL GROWTH REQUIREMENTS.

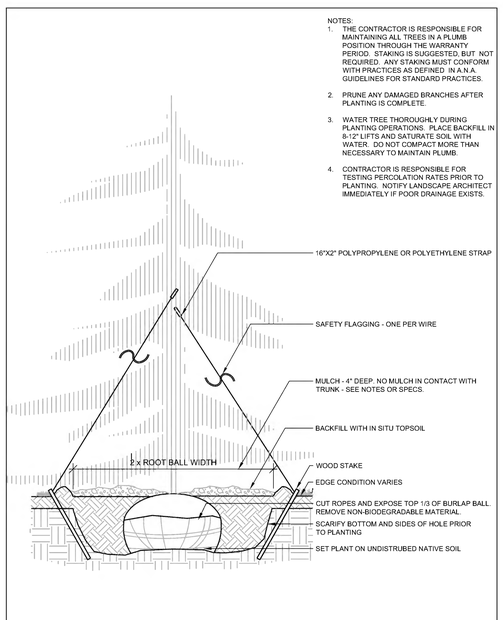
IRRIGATION SYSTEM IS NOT TO SPRINKLE ACROSS PAVEMENT NOR SHALL THE SYSTEM SPRINKLE THE BUILDING.

THE SYSTEM SHALL INCORPORATE A RAIN SENSOR INTO IRRIGATION SYSTEM.

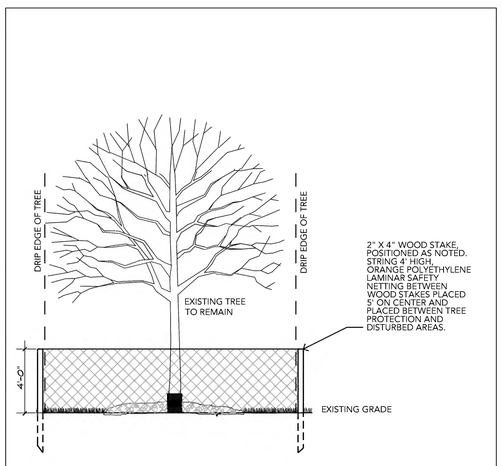
PLANTINGS OUTSIDE THE LIMITS OF IRRIGATION ARE TO BE WATERED REGULARLY UNTIL PLANTING/SOD/SEED HAS BEEN ESTABLISHED.




1 | PLANTING - DECIDUOUS TREE | 3/4" = 1'-0" | LOUCKS | PLANT-TREE-01



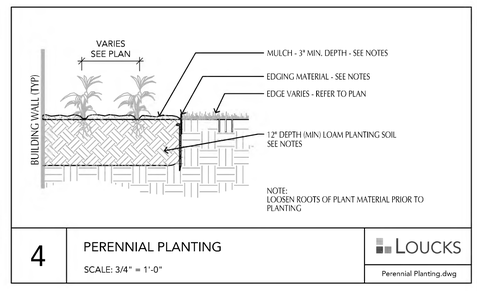

2 | PLANTING - CONIFEROUS TREE | 3/4" = 1'-0" | LOUCKS | PLANT-TREE-02



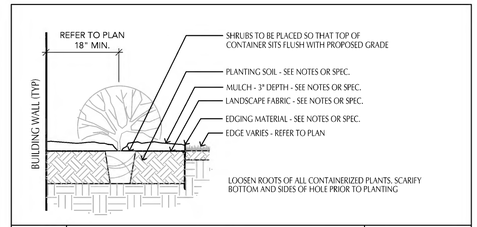

TREE PROTECTION NOTE:
INSTALL SNOW FENCE AROUND EACH TREE TO BE PROTECTED PRIOR TO GRADING. FENCE SHALL BE PLACED AT THE DRIP EDGE OR CRITICAL ROOT ZONES OF THE TREES. FENCING SHALL BE NO CLOSER THAN 6' TO THE TRUNK OF ANY TREE TO BE PROTECTED. THE PERIMETERS FOR TREES BEING PROTECTED SHALL BE DESIGNATED AT ALL TIMES DURING CONSTRUCTION ACTIVITY AND SIGNAGE SHALL BE INSTALLED AT ALL TREE PROTECTION AREAS THAT INSTRUCTS WORKERS TO STAY OUT. CONTRACTOR SHALL AVOID ALL AREAS WITHIN TREE PROTECTION FENCE. SOIL SHOULD BE PROTECTED FROM EROSION AND CHANGES IN CHEMISTRY FROM CONCRETE OR TOXIC MATERIALS SUCH AS FUELS AND PAINTS.

THE CONTRACTOR SHALL HAVE "TREE PAINT" ON SITE AT ALL TIMES. IF AN OAK IS WOUNDED DURING CONSTRUCTION, THE CONTRACTOR MUST IMMEDIATELY APPLY PAINT TO THE WOUND IN ORDER TO PREVENT OAK WILT. ALL DAMAGE TO TREES TO BE PROTECTED SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND LANDSCAPE ARCHITECT.

3 | TREE PROTECTION | 1/4" = 1'-0" | LOUCKS | PLANT-TREE-08




4 | PERENNIAL PLANTING | SCALE: 3/4" = 1'-0" | LOUCKS | Perennial Planting.dwg




5 | SHRUB PLANTING | SCALE: 3/4" = 1'-0" | LOUCKS | Shrub Planting.dwg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SUBMITTAL/REVISIONS

10/18/23 C TY SUBM TTAL

PROFESSIONAL SIGNATURE

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Landscape Architect under the laws of the State of Minnesota.

Douglas D. Loken - LA
License No. 45591
Date -

QUALITY CONTROL

| | |
|---|---|
| Loucks Project No. | 23055A |
| Project Lead | PJD |
| Drawn By | DDL |
| Checked By | DDL |
| Review Date | 10/18/23 |



LANDSCAPE DETAILS
L1-6


Plotted: 10/18/2023 10:49 AM W:\2023\23055A\CADD DATA\LANDSCAPE\L dwg Sheet Files\L1-6 - LANDSCAPE DETAILS