

Purchasing Division Finance Department

Room 120 411 West First Street Duluth, Minnesota 55802



Addendum 1 Solicitation 20-99379 Piedmont Rec Area Green Infrastructure Improvements

This addendum serves to notify all bidders of the following changes to the solicitation documents:

- Clearing is no longer included in the wetland restoration. Clearing and Grubbing has been clarified to include specific invasive species. Contractors will be expected to provide proof of a current applicators license at the time of the construction meeting.
- 2. Paragraph SP-6 (2105) Wetland Enhancement is replaced with the following:

 This work will cut down existing vegetation and re-establish wetlands with native plantings. Contractor shall treat seed bearing invasive species. Contractor shall import and incorporate topsoil Organic Topsoil Borrow (MnDOT 2574.507) over the disturbed area. New topsoil to be mixed by tilling or other effective means with top 4" of existing soil. Disturbed areas to be seeded with MnDOT Seed mix 34-371 at a rate of 12.5 lbs/ acre. The contract for Wetland enhancement includes maintenance of enhanced areas through three consecutive growing seasons. Contractor shall return a minimum of once per year through three consecutive growing seasons to maintain the areas of invasive species removal (awarded area, i.e. base bid or base bid and selected alternate area). Maintenance shall include removal of new invasive species and re-seeding areas that are disturbed, bare or thinly populated. Contractor time planting activities to accommodate best practices based on the growth season and treatment effectiveness.
- 3. The upper parking lot is a designated staging area and needs to be top dressed with Class 5.
- 4. Railings have been added to both sides of the ADA accessible route and the concrete stairway of Alternate #1.
- 5. Contractors may propose similar diameter MnDOT 2501.503 RC PIPE CULVERT CLASS II as an alternate to CP PIPE CULVERT (SMOOTH). Bidders shall note the pipe material in the Bidder Question box of the solicitation.
- 6. Changes have been made to the bid form in the BidExpress solicitation. Contractors should be aware that separate pricing is not requested for alternates, rather the price for alternates shall be determined using the unit prices provided in the base bid.

- 7. Attached is a revised planset with changes per this addendum.
- 8. The following list of attendees is provided in lieu of a pre-bid sign-in sheet:

Andy Dammer - VEIT

Troy – Prairie Restorations

Mike – Bougalis

Rob Irving – Dirt Inc

Mike Johnson – KTM

Jim Shoberg – City of Duluth

Will DeRocher - TKDA

Please acknowledge receipt of this Addendum by checking the acknowledgment box within the www.bidexpress.com solicitation.

Posted: July 2, 2020

EXISTING

PROPOSED

MAJOR CONTOUR (5') MINOR CONTOUR (1') **EXISTING TRAIL** CENTERLINE **EXISTING STORM SEWER** CREEK

> PROPOSED CONTOUR - MAJOR (5') PROPOSED CONTOUR - MINOR (1')

FILTER LOG TYPE COMPOST

RIP RAP/ ROCK ARMORING **ROCK STABILIZED ENTRANCE**

STORM SEWER

SEEDING

EXISTING UTILITY LOCATIONS

THE CONTRACTOR SHALL VERIFY ALL EXISTING UNDERGROUND UTILITY LOCATIONS AND ELEVATIONS PRIOR TO CONSTRUCTION. ALL

INPLACE UTILITIES MAY NOT BE SHOWN ON THIS PLAN & THOSE THAT

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL "D". THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF

ARE SHOWN, MAY NOT BE SHOWN IN THE EXACT LOCATIONS.

CONSTRUCTION PLANS FOR:

PIEDMONT RECREATIONAL AREA GREEN INFRASTRUCTURE **IMPROVEMENTS**

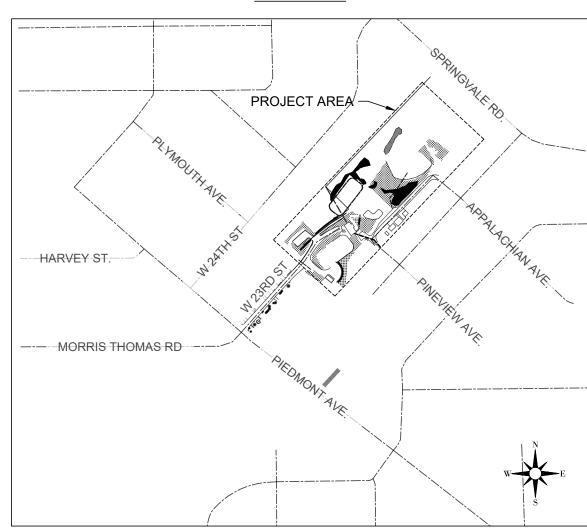
CITY OF DULUTH

CONSTRUCTION PLANS FOR STORMWATER INFRASTRUCTURE AND ACCESSIBILITY **IMPROVEMENTS**

SPECIFICATION REFERENCES

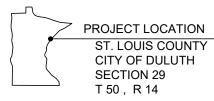
- 1. THE 2019 CITY OF DULUTH, MINNESOTA CONSTRUCTION STANDARDS SHALL APPLY.
- 2. THE MINNESOTA DEPARTMENT OF NATURAL RESOURCES "TRAIL PLANNING, DESIGN, AND DEVELOPMENT GUIDELINES" SHALL APPLY.
- THE 2018 MNDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION SHALL APPLY.
- TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MN MUTCD. INCLUDING THE FIELD MANUAL DATED DECEMBER 2019.

LOCATION MAP



SHEET INDEX							
SHEET TITLE							
TITLE SHEET							
STATEMENT OF ESTIMATED QUANTITIES							
EXISTING CONDITIONS AND REMOVALS							
PIEDMONT RECREATIONAL AREA SITE LAYOUT							
PATHWAY PLAN & PROFILE							
SITE SEEDING PLAN							
SITE PLANTING PLAN							
SWPPP							
DETAILS							
ADA CURB RAMP DETAILS							
EROSION CONTROL DETAILS							

THIS PLAN SET CONTAINS 18 SHEETS



CONTRACTOR TO NOTIFY 911 PERSONNEL PRIOR TO ALL ROAD CLOSURES.

GSOC

EXISTING SUBSURFACE UTILITY DATA.

GOPHER STATE ONE CALL 651.454.0002 800.252.1166

1.866.640.3637 (EMERGENCY LOCATES ONLY) http://www.gopherstateonecall.org/submit

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

> DATE 06/18/20 54757 LIC. NO.

ALL CONTRACTORS AND SUBCONTRACTORS SHALL VERIFY ALL DIMENSIONS BY MEASUREMENT AT THE BUILDING AND/OR SITE

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11 E. Superior Street, Suite 420 Duluth, MN 55802 218.724.8578 tkda.com

17559.000

TITLE SHEET

STATEMENT OF ESTIMATED QUANTITIES									
ITEM NO. NOTE SPEC.		SPEC. NO.	ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	CONCRETE STAIRWAY (ALT #1)	CONCRETE PATHWAY (ALT #2)	CLEARING ALTERNATE (ALT #3)	
1	9	2012.602	TRAFFIC CONTROL SPECIAL	EACH	1				
2		2021.501	MOBILIZATION	LS	1				
3	10	2101.501	CLEARING & GRUBBING	ACRE	1.6			9.9	
4	1	2104.502	REMOVE STAIRS	EACH		1			
5		2104.502	REMOVE PIPE APRON	EACH	2				
6		2104.503	REMOVE PIPE CULVERTS	LF	75				
7		2104.503	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	175				
8		2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	229				
9		2105.507	COMMON EXCAVATION	CU YD	35				
10		2105.507	SELECT GRANULAR BORROW MOD 7% (CV)	CU YD	21				
11	2	2105.601	WETLAND RESTORATION	LUMP SUM	1				
12	11	2106.507	SELECT GRANULAR EMBANKMENT (LV)	CU YD	10				
13		2211.507	AGGREGATE BASE (CV) CLASS 5	CU YD	319	24			
14		2118.601	AGGREGATE SURFACING (CV) CLASS SPECIAL	CU YD	51				
15	13	2360.504	TYPE SP 9.5 WEAR CRS MIX (3,C)	TON	224		-207		
16		2402.503	STRUCTURAL TUBE RAILING	LIN FT		330			
17	3	2411.502	CONCRETE STAIRWAY	EACH		1			
18		2501.502	18" HDPE PIPE APRON	EACH	2				
19		2501.502	30" HDPE PIPE APRON	EACH	2				
20		2501.503	30" CP PIPE CULVERT (SMOOTH)	LIN FT	80				
21		2501.503	18" CP PIPE CULVERT (SMOOTH)	LIN FT	40				
22		2502.503	8" PERF TP PIPE DRAIN	LIN FT	665				
23		2502.503	8" NON-PERF TP PIPE DRAIN	LIN FT	125				
24		2511.507	RANDOM RIPRAP CLASS III	CU YD	171				
25	13	2521.618	SIDEWALK	SQ FT	150	655	7775		
26		2531.618	TRUNCATED DOMES	SQ FT	48	16			
27	4	2540.602	INTERPRETIVE SIGN	EACH	1				
28		2571.524	DECIDUOUS TREE B&B 2" CAL.	TREE	27				
29			DECIDUOUS SHRUB (POTTED)	SHRB	21				
30		2573.503	SEDIMENT CONTROL LOG TYPE COMPOST	LF	650				
31			ROCK DITCH CHECK	EACH	6				
32	12		FILTER TOPSOIL BORROW	CU YD	4				
33	5	2575.508	SEED MIXTURE 34-171	POUND	3				
34	6	2575.508	SEED MIXTURE 25-151	POUND	15				
35	7	2575.508	SEED MIXTURE 36-411	POUND	54				
36	8	2575.604	ROLLED EROSION PREVENTION CATEGORY 25	SQ YD	21				
37		2575.605	SEEDING	ACRE	2.1				
38		2582.503	4" SOLID LINE PAINT	LIN FT	185.0				

CONSTRUCTION NOTES:

- I. REMOVE STAIRS ITEM INCLUDES REMOVAL AND DISPOSAL OF EXISTING
 WOODEN STAIRSASE.
- 2. WETLAND RESTORATION PAY ITEM INCLUDES ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO SCARIFY DELINEATED AREAS, TOPSOIL, SEED & BLANKET EXCAVATED ROOT MASSES, CULTIVATION OF NATIVE PLANTINGS AND THREE (3) YEARS OF INVASIVE SPECIES MANAGEMENT. WETLAND RESTORATION AREA IS 0.45 ACRE,
- 3.—CONCRETE STAIRWAY ITEM INCLUDES LABOR, MATERIALS, EQUIPMENT AND SUBCUT FOR GROUND PREPARATION. HAND RAILINGS SHALL BE INSTALLED ALONG BOTH SIDES OF THE STAIRCASE AS WELL AS BOTH SIDES OF THE ACCESSIBLE WALKWAY.
- 4. INTERPRETIVE SIGN ITEM TO BE PROVIDED BY OTHERS. CONTRACTOR TO INSTALL SIGN FOUNDATION, POSTS AND SIGN PANEL.
- 5. SEED MIXTURE 34-171 ITEM TO BE USED IN BWSR WT3 AND WETLAND RESTORATION AREAS. USES 5.3 LBS/ACRE.
- 6. SEED MIXTURE 25-151 ITEM TO BE USED IN RESTORATION ADJACENT TO ROADWAY AND TRAIL IN MOWED AREAS. USES 120 LBS/ACRE.
- 7. SEED MIXTURE 36-411 ITEM TO BE USED IN "NO-MOW" AREAS. USES 35.5 LBS/ACRE.
- 8. PAY ITEM SHALL INCLUDE ALL EQUIPMENT, MATERIALS AND LABOR NECESSARY TO BLANKET ALL DISTURBED AREAS. DISTURBED AREAS INCLUDE GRADING AND WETLAND ENHANCEMENT. SEED AND BLANKETING OF AREAS USED FOR STAGING, BORROW OR SPOILS SHALL BE CONSIDERED INCIDENTAL TO THE COMMON EXCAVATION PAY ITEM.
- 9. PAY ITEM SHALL INCLUDE ALL EQUIPMENT, MATERIALS AND EQUIPMENT NECESSARY TO BARRICADE WORK AREAS DURING CONSTRUCTION.
 CONTRACTOR TO PROVIDE ADVANCED WARNING TO CITY AND EMERGENCY SERVICES OF ROAD CLOSURES AND BARRICADE GRADING AND CLEARING WORK ZONES. ROAD CLOSURES TO BE COMPLETED IN ACCORDANCE WITH MnMUTCD TRAFFIC CONTROL MANUAL DATED DECEMBER 2019. ALL SIGNAGE, BARRIERS AND FLAGGING SHALL BE CONSIDERED INCIDENTAL TO THE TRAFFIC CONTROL PAY ITEM.
- 10. CLEARING AND GRUBBING PAY ITEM SHALL INCLUDE ALL EQUIPMENT, LABOR AND MATERIALS NECESSARY TO CUT VEGETATION AND REMOVE ROOTS IN THE PLAN DESIGNATED AREAS. PAY ITEM INCLUDES WORK ASSOCIATED WITH REMOVING BRUSH FOR SITE FEATURES (PATHWAYS AND STORMWATER FEATURES) AS WELL AS INVASIVE SPECIES REMOVAL. PAY ITEM SHALL INCLUDE ALL VEGETATION, INDISCRIMINATE OF DIAMETER. CONTRACTOR TO PROTECT NATIVE AND SPECIAL TREES ADJACENT TO WORK AREAS. INVASIVE SPECIES WITHIN WETLANDS SHALL BE REMOVED BY MECHANICAL MEANS. OUTSIDE DELINEATED WETLANDS, HERBICIDE TREATMENT IS ALLOWED. CONTRACTOR SHALL SUPPLY PROOF OF HERBICIDE APPLICATION LICENSURE AT THE TIME OF THE RECONSTRUCTION MEETING.
- 14. PAY ITEM SHALL INCLUDE ALL EQUIPMENT LABOR AND MATERIALS NECESSARY FOR INSTALLATION OF SAND FILTER IN FILTRATION BASIN.
- 12. PAY ITEM SHALL INCLUDED ALL EQUIPMENT, LABOR AND MATERIALS NECESSARY TO INSTALL TOPSOIL IN FILTRATION BASIN.
- 13. CONCRETE PATHWAY ALTERNATE IS A REPLACEMENT OF BITUMINOUS PAVEMENT WITH CONCRETE FOR PARK PATHWAYS.

ALL CONTRACTORS AND SUBCONTRACTORS SHALL VERIFY ALL DIMENSIONS BY MEASUREMENT AT THE BUILDING AND/OR SITE

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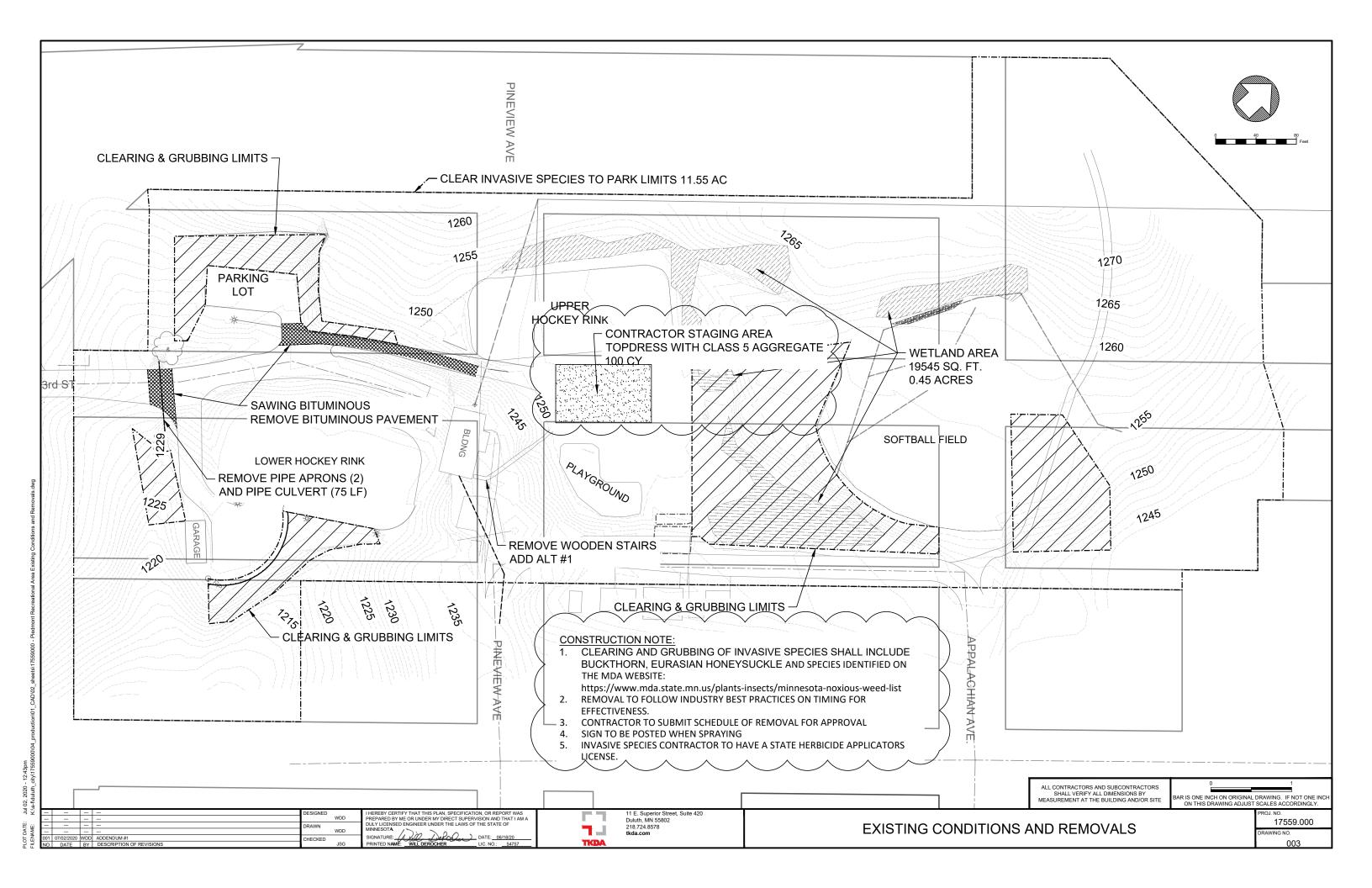
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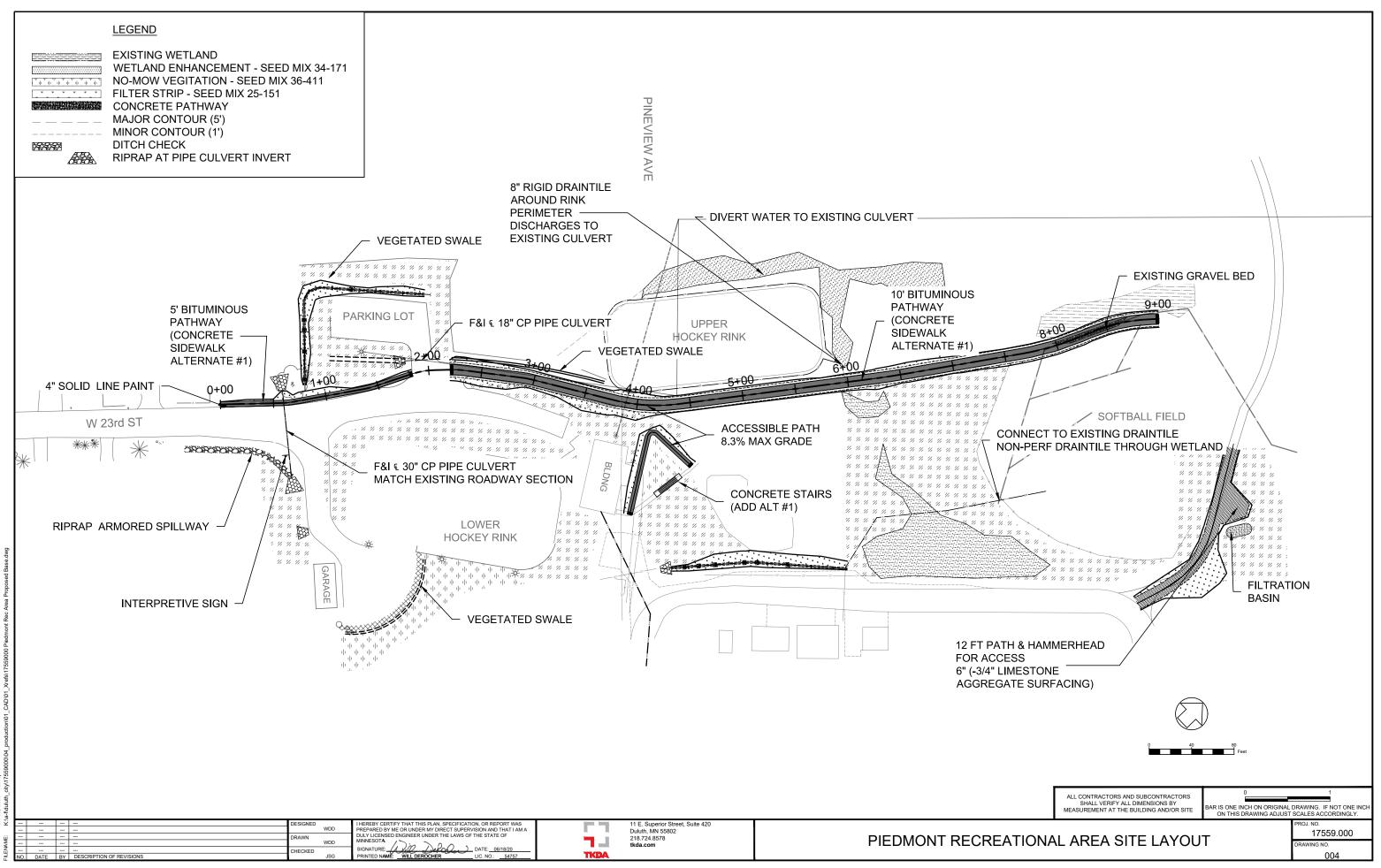
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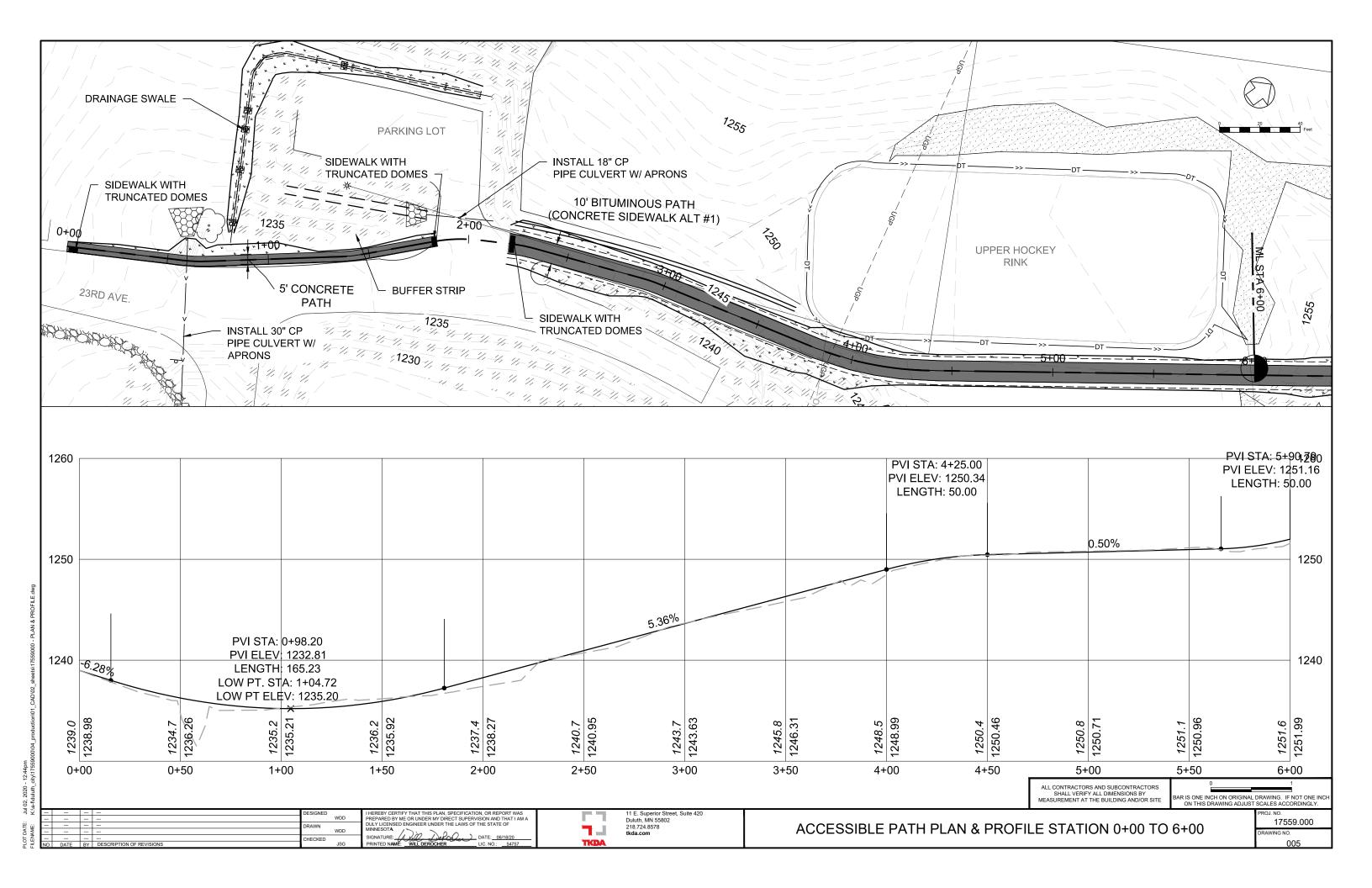
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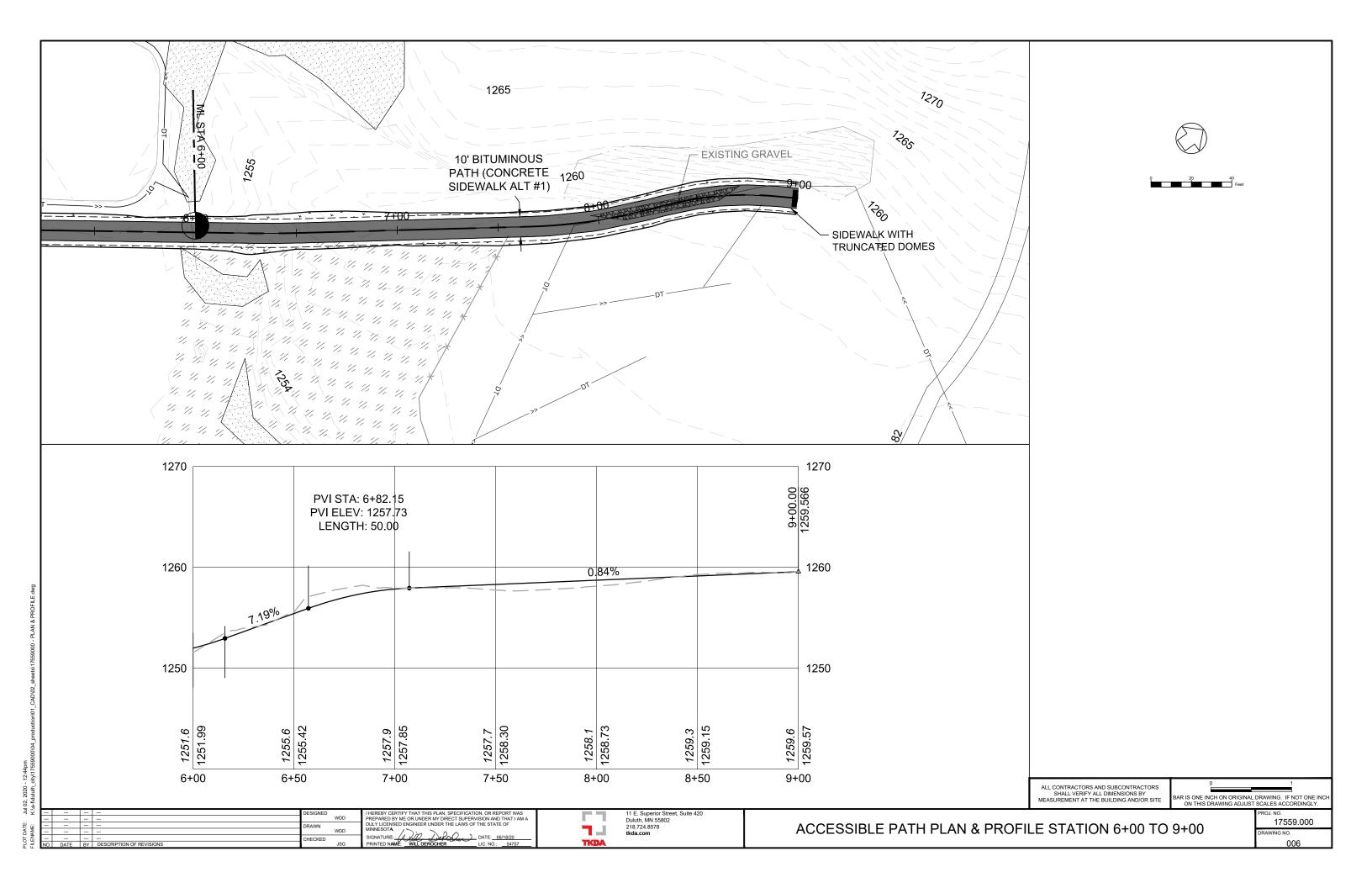


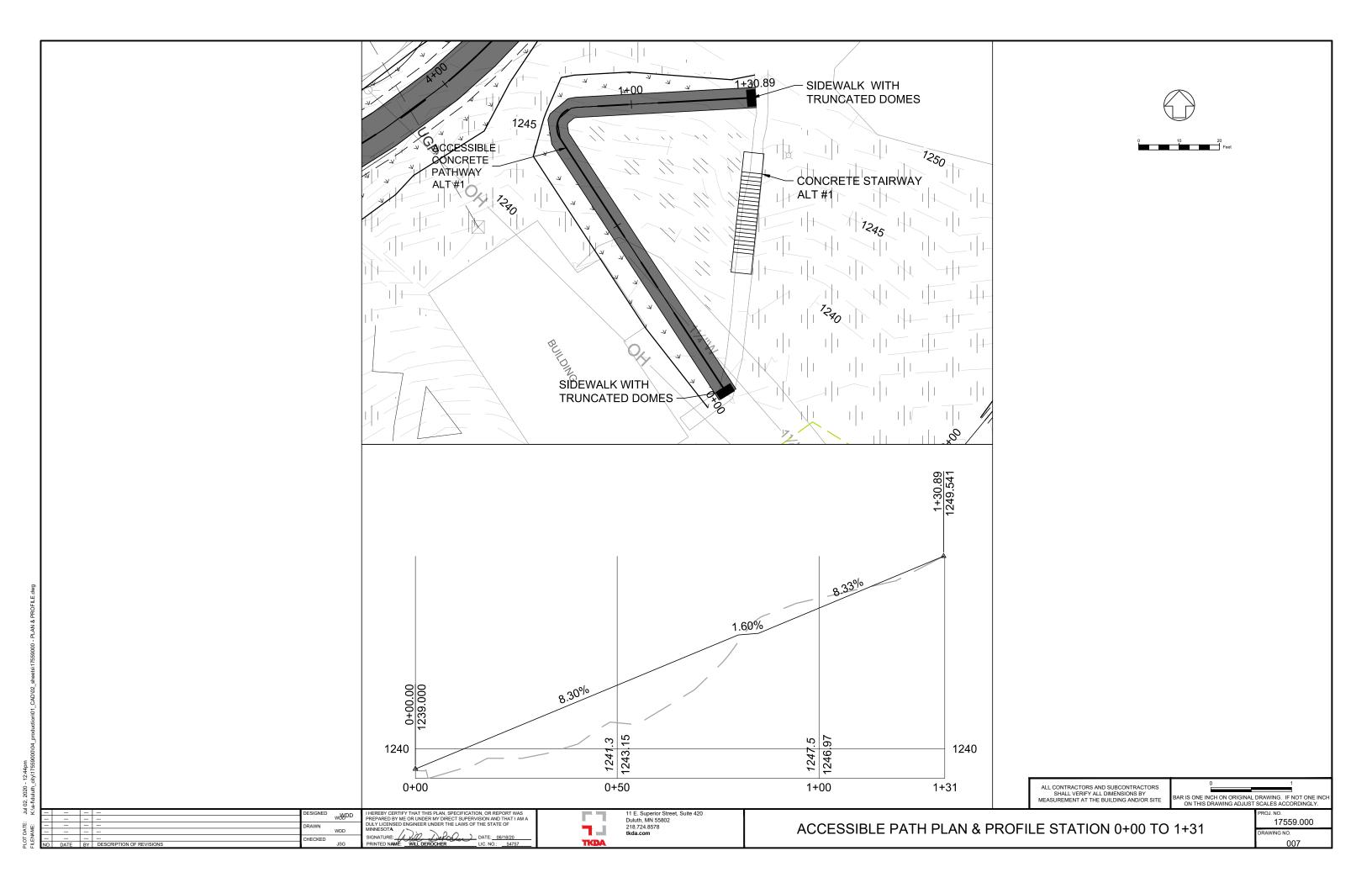


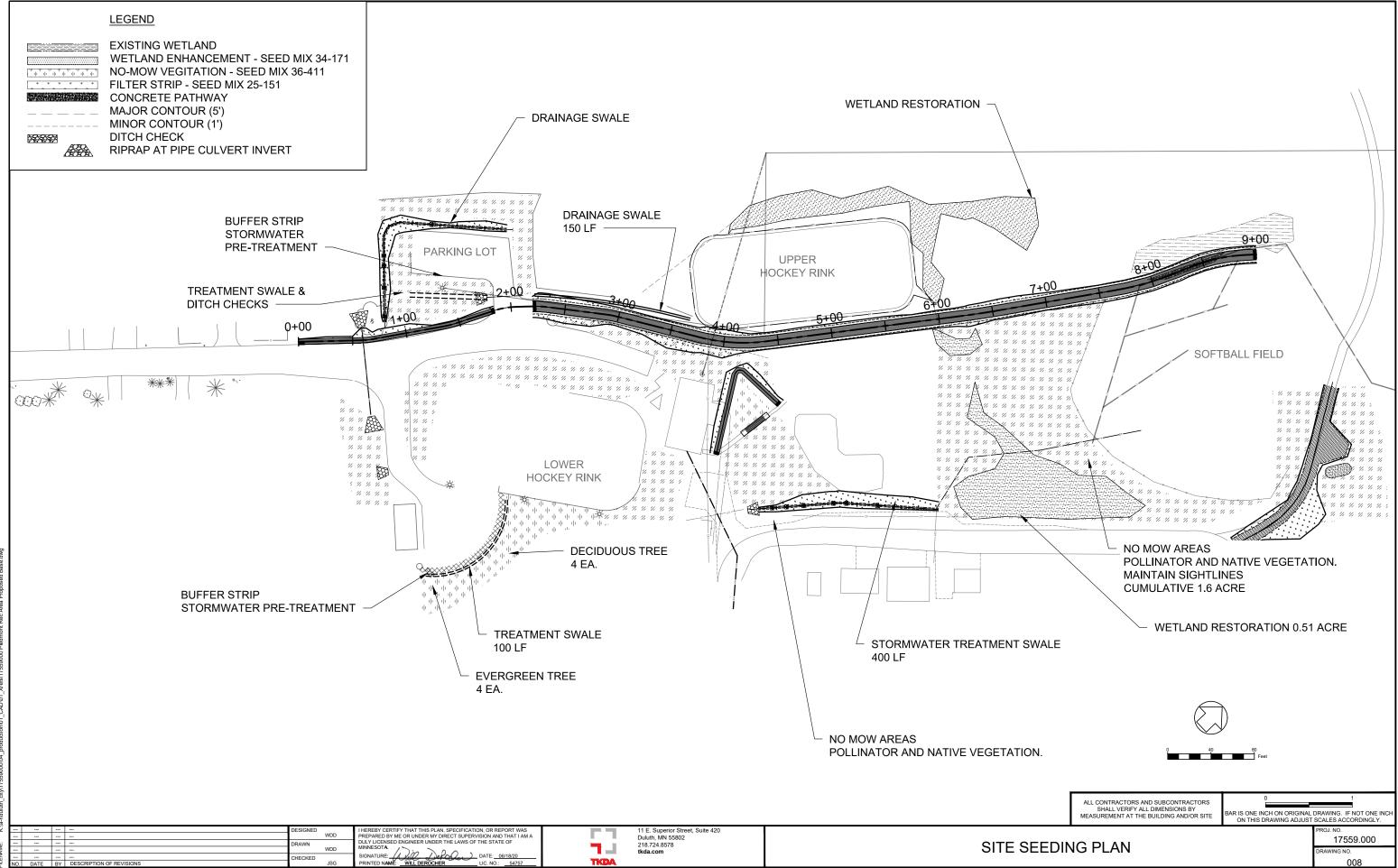


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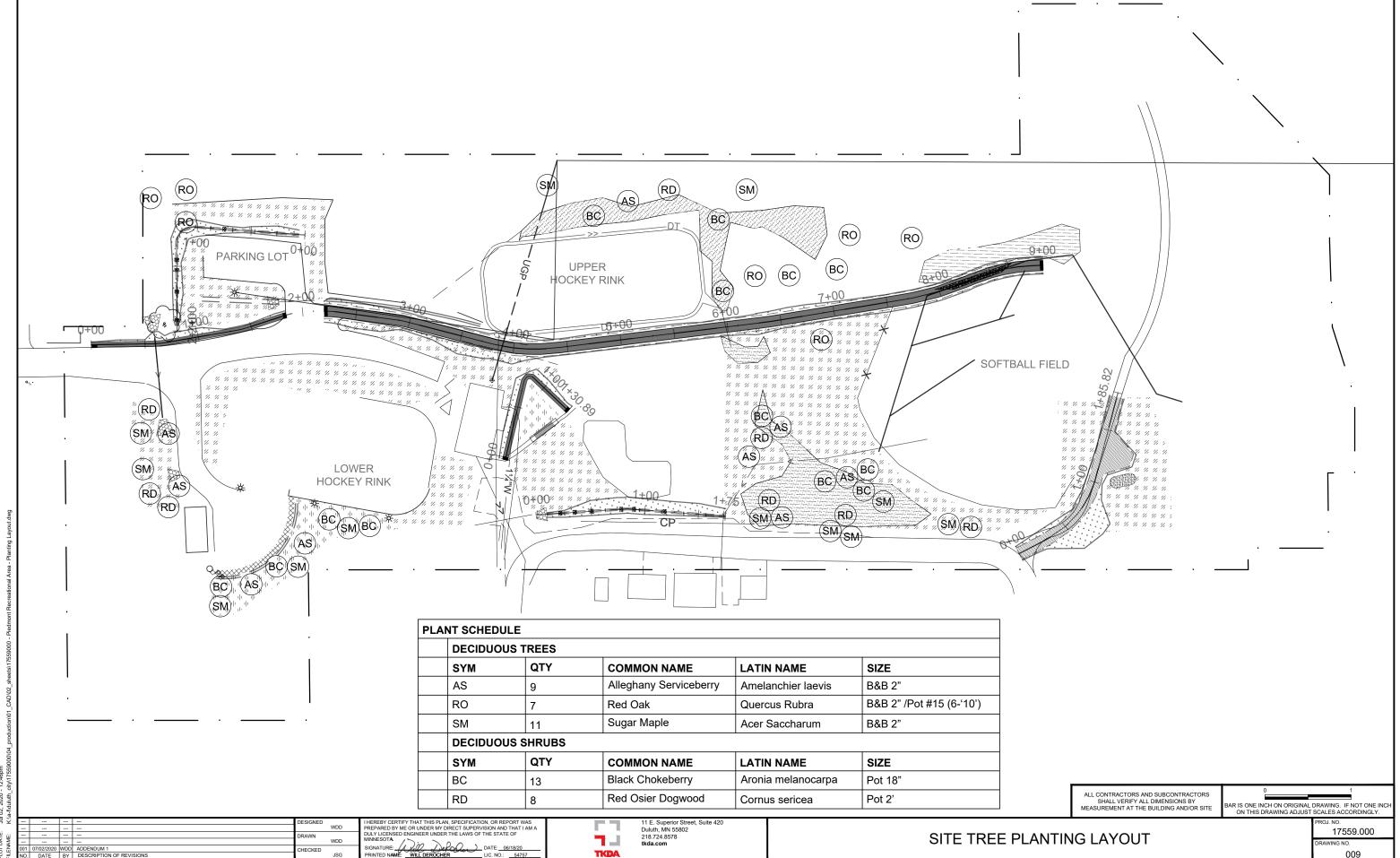






PLOT DATE: Jul 02, 2020 - 12:45pm

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PROJECT DESCRIPTION

THIS PROJECTED WILL IMPROVE STORMWATER CONTROL AND TREATMENT IN THE PIEDMONT RECREATION AREA IN DULUTH, MN. GROUND DISTURBING ACTIVITIES ASSOCIATED WITH THIS PROJECT WILL INCLUDE GRADING, WETLAND ENHANCEMENT, INVASIVE SPECIES REMOVAL, DRAINAGE IMPROVEMENTS AND PATHWAY CONSTRUCTION. THE TOTAL LAND AREA ANTICIPATED TO BE DISTURBED BY THE PROJECT (EXCLUSIVE OF BORROW AND DISPOSAL AREAS) IS 2.39 ACRES.

SWPPP IMPLEMENTATION CONTACTS								
AGENCY	PERMIT	NAME	PHONE/ EMAIL					
PROJECT MANAGER	N/A	T.B.D.	PHONE EMAIL					
CONTRACTOR'S EROSION CONTROL SUPERVISOR	N/A	T.B.D.	PHONE EMAIL					
CITY OF DULUTH	GRADING AND CONSTRUCTION	JIM SHOBERG, PLA	218.730.4316 jshoberg@duluthmn.gov					
PROJECT ENGINEER	N/A	WILL DEROCHER, PE	218.491.7384 will.derocher@tdka.com					
MPCA	NPDES	JIM DEXTER	218.302.6632 james.dexter@state.mn.us					

CONSTRUCTION NOTES

CONSTRUCTION SHALL BE GOVERNED BY THE 2018 MNDOT STANDARD SPECIFICATIONS, AND CURRENT CITY OF DULUTH - MINNESOTA STANDARD CONSTRUCTION SPECIFICATIONS AND SPECIAL PROVISIONS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION OF THE SWPPP AND THE INSTALLATION, INSPECTION AND MAINTENANCE OF THE EROSION AND SEDIMENT CONTROL BMPS FOR THE DURATION OF THE PROJECT.

THE CONTRACTOR SHALL KEEP THE INSPECTION AND MAINTENANCE LOGS IN ACCORDANCE WITH THIS SWPPP, ALL PERMITS, ALL INSPECTION AND MAINTENANCE RECORDS AND DESIGN CALCULATIONS. THE CONTRACTOR SHALL MAINTAIN A RESPONSIBLY SIZED STOCKPILE OF EROSION CONTROL DEVICES AVAILABLE FOR RAPID DEPLOYMENT WHEN NECESSARY.

CALCULATIONS

TOTAL DISTURBED AREA = 2.39 ACRES
POST CONSTRUCTION IMPERVIOUS AREA = 0.19 ACRES
EXISTING IMPERVIOUS AREA = 0.19 ACRES
IMPERVIOUS NET = 0.00 ACRES (NO NET INCREASE)

TIMING OF BMP INSTALLATION

THE EROSION AND SEDIMENTATION CONTROL BMPS SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY TO MINIMIZE EROSION FROM DISTURBED SURFACES AND CAPTURE SEDIMENT ON SITE, AND SHALL MEET THE NPDES PERMIT PART IV CONSTRUCTION ACTIVITY REQUIREMENTS.

- 1. TEMPORARY PERIMETER CONTROL BMPS WILL BE INSTALLED BEFORE ANY UP GRADIENT SOIL DISTURBANCES OCCUR.
- 2. PERMANENT AND TEMPORARY SEDIMENT TRAPS AND BASINS (IF APPLICABLE) WILL BE CONSTRUCTED BEFORE ANY SITE DISTURBANCES ARE PERMITTED.
- 3. DITCHES/ WET SWALES SHALL BE EXCAVATED TO GRADING GRADE AND PROTECTED WITH BALE CHECKS AND SILT FENCE UNTIL ROAD AND UTILITY CONSTRUCTION HAS BEEN STABILIZED. FINAL DITCH GRADES AND FILTER MEDIUM SHALL BE PLACED AFTER TURF HAS BEEN ESTABLISHED.
- 4. TOPSOIL, SEED, EROSION CONTROL BLANKET AND NECESSARY ADDITIONAL TEMPORARY EROSION CONTROL BMPS (IF APPLICABLE) SHALL BE PLACED WITHIN 7 DAYS OF COMPLETION OF ANY EMBANKMENT.
- 5. PLACEMENT OF RIPRAP SHALL BE COMPLETED WITHIN 24 HOURS OF CULVERT PLACEMENT, AND DONE IN ONE CONTINUOUS OPERATION.
- 6. DISTURBED AREAS IN WHICH CONSTRUCTION ACTIVITIES HAVE CEASED OR WILL BE SUSPENDED FOR 7 DAYS OR MORE SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT BMPS FOR EROSION.

CONTACTS

THE SWPPP ENGINEER IS: PROJECT SUPERVISOR IS: (TBD)

EMAIL

WILL DEROCHER, P.E. NAME
TKDA - ADDRESS
11 E. SUPERIOR ST. SUITE 420 PHONE

DULUTH, MN 55802 218.491.7384

will.derocher@tkda.com

ALL CONTRACTORS AND SUBCONTRACTORS SHALL VERIFY ALL DIMENSIONS BY MEASUREMENT AT THE BUILDING AND/OR SITE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCON THIS DRAWING ADJUST SCALES ACCORDINGLY.

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11 E. Superior Street, Suite 420
Duluth, MN 55802
218.724.8578
tkda.com
SWPPP 1 OF 2

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STORM WATER POLLUTION PREVENTION PLAN

- 1. The current City of Duluth Construction Standards, shall apply.
 - Contractor will be permittee for the MPCA NPDES stormwater construction permit for this project Contractor's signature on permit is required. Submit Initial Erosion Control (EC) schedule at or before the pre-construction meeting. Submit EC schedule alterations/adjustments weekly thereafter for Engineers approval.

2. The Contractor is responsible for EC Quality Control on this project. (MnDOT 1717.2 B)

- Contractor shall phase/sequence the project to minimize exposure to erosion. Contractor shall place or otherwise construct erosion control and sediment containment devices to minimize the runoff, tracking and sediment loss from disturbed areas of the project site.
- 3. Sediment and erosion control devices shall be functional before ground disturbance activities begin.
- 4. Total disturbed area is 2.39 acres, beginning impervious area is 0.19 acres, and new impervious area is 0.19 acres.
- 5. Receiving water is Miller Creek.
- 6. Disturbed slopes not actively worked shall be protected from soil erosion with temporary or permanent cover within permit requirements but in no case greater than 7 days of being worked.
 - Use erosion control blanket with soil staples, or engineer approved equal.
- 7. At minimum, the following controls will be implemented at the construction site:
 - * Sediment control logs shall be used in conjunction with other erosion BMPs.
 - * Rock ditch checks or approved equal are to be used to reduce ditch velocities and reduce erosion.
 - * Storm inlets and outlet area shall be protected with rip rap.
 - * Stabilized construction entrance shall be used to reduce sediment tracking.
 - * Storm inlets shall be continuously protected by rock filled socks or specified inlet protection devices.
 - * Permanent vegetation will be established right after topsoil is re-spread.
 - * Control all site waste, debris, material storage, concrete washout, to prevent impacts to any drainageway.
 - * All exposed soil areas with a slope of 3:1 or steeper, that have a continuous positive slope to a special water must have temporary erosion protection or permanent cover within 3 days after the area is no longer actively being worked. All other slopes that have a continuous positive slope to a special water must have temporary erosion protection or permanent cover within 7 days after the area is no longer actively being worked.
- 8. All slopes and ditches shall be stabilized prior to opening new culverts into existing drainage ways.
- 9. If any stockpile is to remain in place for more than 3 days, sediment and erosion control devices shall be used.
- 10. Water pumped or otherwise discharged from the site during construction dewatering shall be directed through effective filtering device(s), and discharged to an energy dissipating device to eliminate erosion at the outlet.
- 11. Site dust generation must be controlled by application of water by spray trucks or similarly effective means of dust control.
- 12. The contractor shall take all possible precautions to prevent appreciable soil tracking onto roadways. Where sediment has been tracked-out from the site onto the surface of off-site streets, other paved areas or sidewalks, the deposited sediment must be removed by the end of the same work day in which the trackout occurs or by the end of the next work day if track-out occurs on a non-work day. The tracked sediment must be removed by sweeping, shoveling, vacuuming or by using other similarly effective means of sediment removal. Hosing or sweeping tracked out sediment into any stormwater conveyance (unless it is connected to a sediment basin, sediment trap, or similarly effective control), storm drain inlet or surface water is prohibited.
- 13. Stabilized construction entrance(s) shall be removed and area restored after grading is complete.
- 14. JAW MnDot 1717.2 B, the contractor QC program shall ensure that a competent individual shall inspect erosion and sediment control devices weekly and after each rain event. All nonfunctional devices shall be repaired/replaced/cleaned. Maintain NPDES Log of all weekly and rain event inspections include the corrective actions that were taken and update the SWPPP to reflect the amended plan. Inspection logs and a current SWPPP shall be maintained on site and available upon request.
- 15. Where not otherwise specified use Rolled Erosion Prevention Category 25 erosion control blanket (ECB). Use with seed mixture 36-311 @ 33.5 lbs per acre and fertilizer 10-10-10 @ 200 lbs per acre. The fertilizer, seed, and blanket shall be placed as per Mn/DOT 2575.5 AND 2575.6. The upgrade end of each blanket strip shall be buried at least 6 inches in a vertical check slot. Staples shall be placed at seams and throughout the blanket at a maximum spacing in all directions of 2 feet.

CONSTRUCTION PRACTICES TO MINIMIZE STORM WATER CONTAMINATION

TO PREVENT STORM WATER CONTAMINATION FROM OCCURRING, THE FOLLOWING BMPS WILL BE IMPLEMENTED:

- 1. All areas that are rough graded must be kept in a smooth condition to allow sheet flow of storm water wherever practical and always ready for surface application of degradable or non-degradable blankets, mulch or other protective covers.
- 2. A stabilized construction entrance/exit will be constructed to reduce vehicle tracking of sediments off the project right of way.
- 3. All non-hazardous waste materials will be collected and stored in a securely lidded metal dumpster or other approved containment method at the end of each day. Any alternative to a metal dumpster must be submitted in writing for approval by the project engineer. All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied as necessary to function as intended for debris collection. No construction materials will be buried on-site. The contractor's erosion control supervisor will instruct all personnel regarding the correct procedure for disposal.
- 4. A licensed sanitary waste management contractor will collect all sanitary waste from the portable units at a rate necessary to maintain design function.
- 5. All vehicles on site will be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage.
- 6. Fertilizers will be stored in a covered shed and partially used bags will be transferred to a sealable bin to reduce chance of spillage.
- 7. Petroleum products will be stored in tightly sealed containers, which are clearly labeled.
- 8. Spill kits will be included with all fueling sources and maintenance activities. Secondary containment measures will be installed and maintained by the contractor.
- 9. Any asphalt substances used on site will be applied in accordance with manufacturers recommendations.
- 10. All paint containers and curing compounds will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm water system but will be properly disposed of according to manufacturer's instructions.
- 11. Materials and equipment necessary for spill clean up will be kept in an enclosed trailer or shed on site, Equipment will include, but not limited to, brooms, mops, dust pans, rags, gloves, absorbent (kitty litter). Oil absorbent brooms and diapers, and buckets.
- 12. All spills will be contained and cleaned up immediately upon discovery, Spills large enough to reach the stormwater conveyance system will be reported to the Minnesota duty officer at 1.800.422.0798.
- 13. Concrete trucks will not be allowed to wash out or discharge surplus concrete or drum wash water on the site. Unless done in an engineered containment system. The engineered system must include site drawings for the project file and written assurance that the system will work as designed and leave no discharge of concrete or concrete residue potential to waters of the state during a minimum of a 100 year storm event.
- 14. Form release oil used for concrete work must be applied over a pallet containing absorbent to collect excess liquid. The absorbent material will be replaced and properly disposed of when saturated.
- 15. Discharges from basin dewatering operations that are turbid or sediment laden shall be discharged to temporary sediment basins constructed on the site to provide treatment prior to discharge to a water of the state.
- 16. Clogged or compromised filters must be replaced. Where there is evidence of sediment accumulation adjacent to the inlet protection measure, deposited sediment shall be removed by the end of the same work day on which it is found or by the end of the following work day if removal by the same work day is not feasible.
- 17. Accumulated sediment shall be removed where the depth of sediment has reached half of the working height of the sediment retaining device. Sediment shall be removed by the end of the work day on which it is found or by the end of the following work day if removal by the same work day is not feasible.

ALL CONTRACTORS AND SUBCONTRACTORS SHALL VERIFY ALL DIMENSIONS BY MEASUREMENT AT THE BUILDING AND/OR SITE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INC ON THIS DRAWING ADJUST SCALES ACCORDINGLY.

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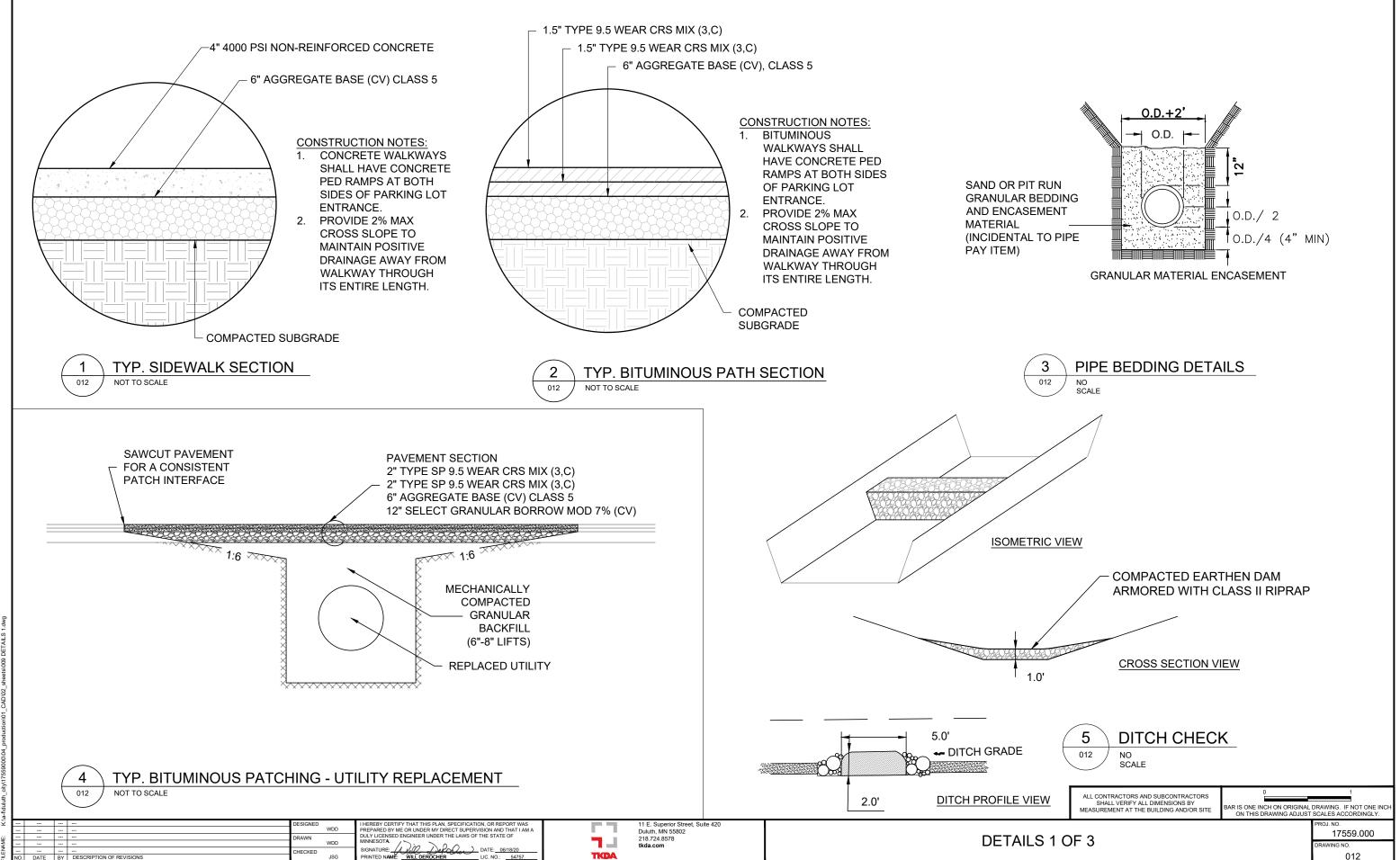
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HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS A PREPARED BY ME OR UNDER MY DIRECT SUBFERVISION AND THAT I AM DILLY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

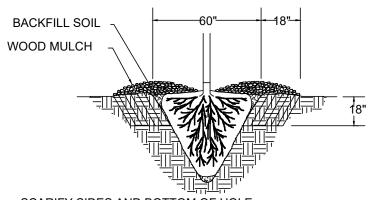
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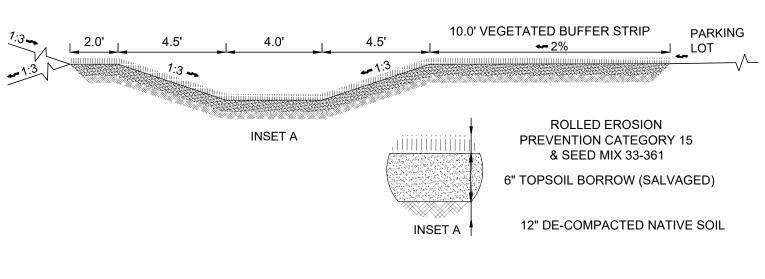
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- SCARIFY SIDES AND BOTTOM OF HOLE.
- SET PLANT ON UNDISTURBED NATIVE SOIL SOIL AT SAME DEPTH AS IT WAS PREVIOUSLY GROWN.
- PLUMB AND BACKFILL WITH ON-SITE SOIL. FILLING ALL VOIDS AND ACCOMPLISHING SETTLEMENT BY WATERING.
- 4. AFTER PLANTING, THE SOIL IMMEDIATELY ADJANCENT TO THE SPADE MOVED SOIL. FOR A MINIMUM DISTANCE OF 18" SHALL BE TURNED OVER AND /OR ROTOTILLED TO A MINIMUM DEPTH OF 12".
- 5. CONSTRUCT 3" DEPTH WATERING BASIN.
- WATER THOROUGHLY WITHIN 2 HOURS.
- 7. PLACE MULCH IMMEDIATELY AFTER TRANSPLANTING. STAKING IS NOT REQUIRED.



TYP. CONCRETE SIDEWALK SECTION



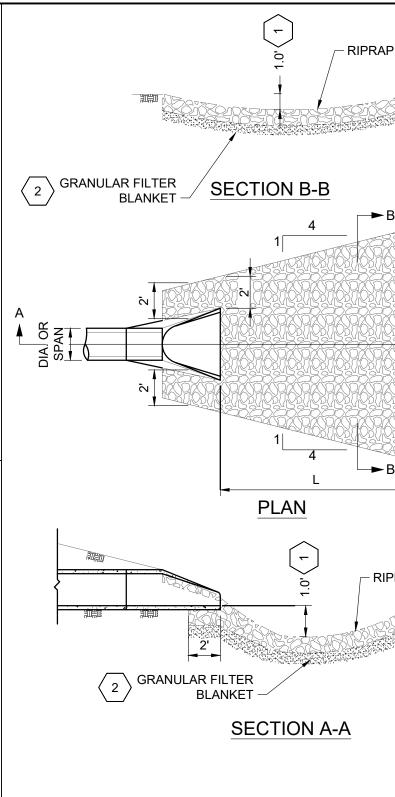
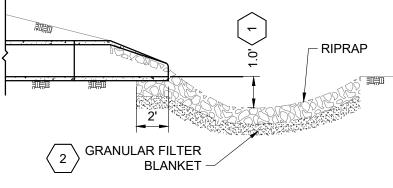


TABLE OF QUANTITIES RIPRAP AT RCP OUTLETS

		CLASS III d ₅₀ = 9"			
DIA. OF ROUND PIPE (IN.)	L (FT.)	18" DEPTH RIPRAP (CU. YDS.)	9" DEPTH GRANULAR FILTER (CU. YDS.)		
18 30	10 14	5.9 10.9	3.0 5.5		

NOTES:

- PIPE SIZES LARGER THAN THOSE SHOWN REQUIRE A SPECIAL DESIGN
- 2. REQUIREMENTS FOR RIPRAP SIZE AND THICKNESS AND GRANULAR FILTER BLANKET WILL BE DESIGNED WITH THE PLANS



KEY NOTES:

- FOR PIPES GREATER THAN OR EQUAL TO 30", USE 1.5'
- THE CONTRACTOR, AT HIS OPTION, MAY SUBSTITUTE A GEOTEXTILE FABRIC, SPEC. 3733, FOR THE **GRANULAR FILTER BLANKET UNLESS** OTHERWISE SPECIFIED IN THE PLANS. THE FABRIC SHOULD COVER THE AREA OF THE RIPRAP AND EXTEND UNDER THE APRON 3FT.

RIPRAP AT RCP OUTLETS

NOT TO SCALE

ALL CONTRACTORS AND SUBCONTRACTORS SHALL VERIFY ALL DIMENSIONS BY MEASUREMENT AT THE BUILDING AND/OR SITE

SAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INC ON THIS DRAWING ADJUST SCALES ACCORDINGLY.

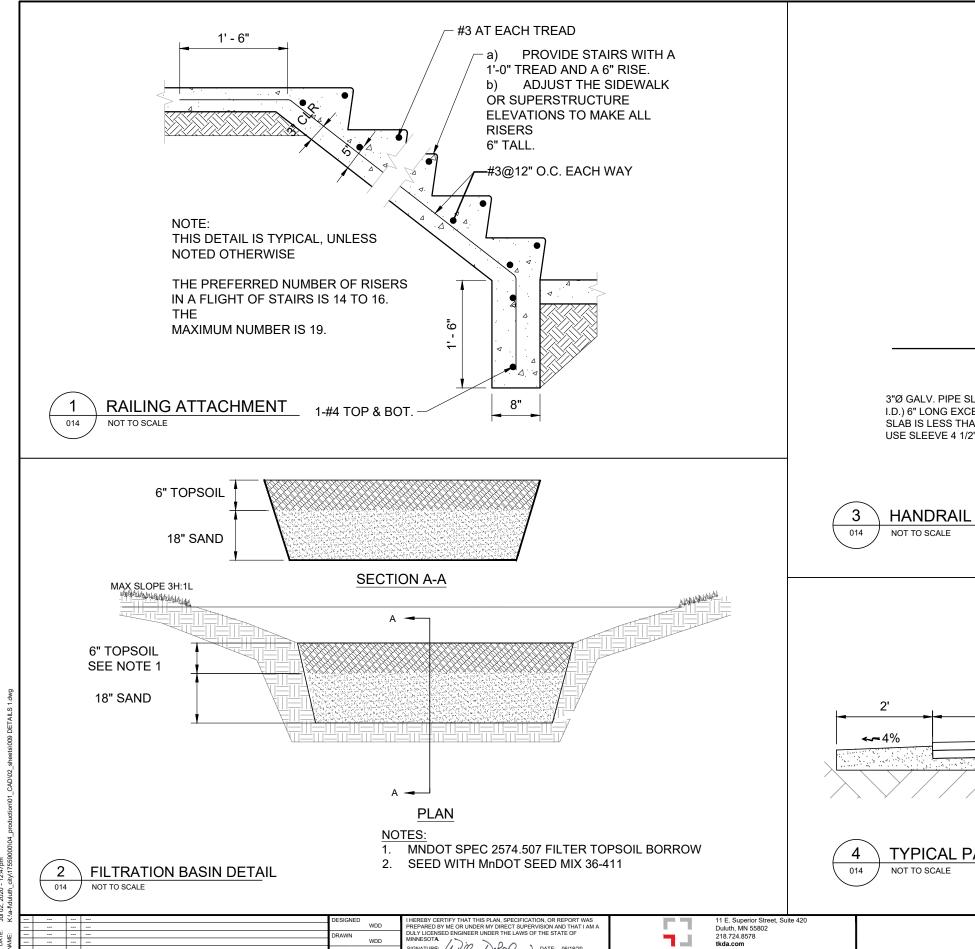
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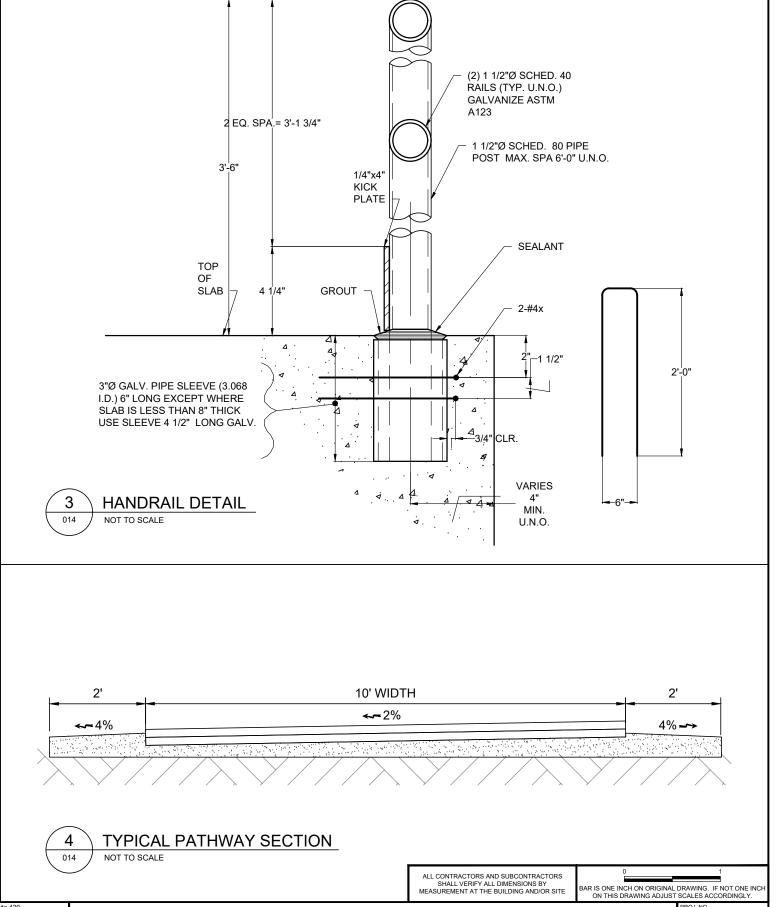
DETAILS 2 OF 3

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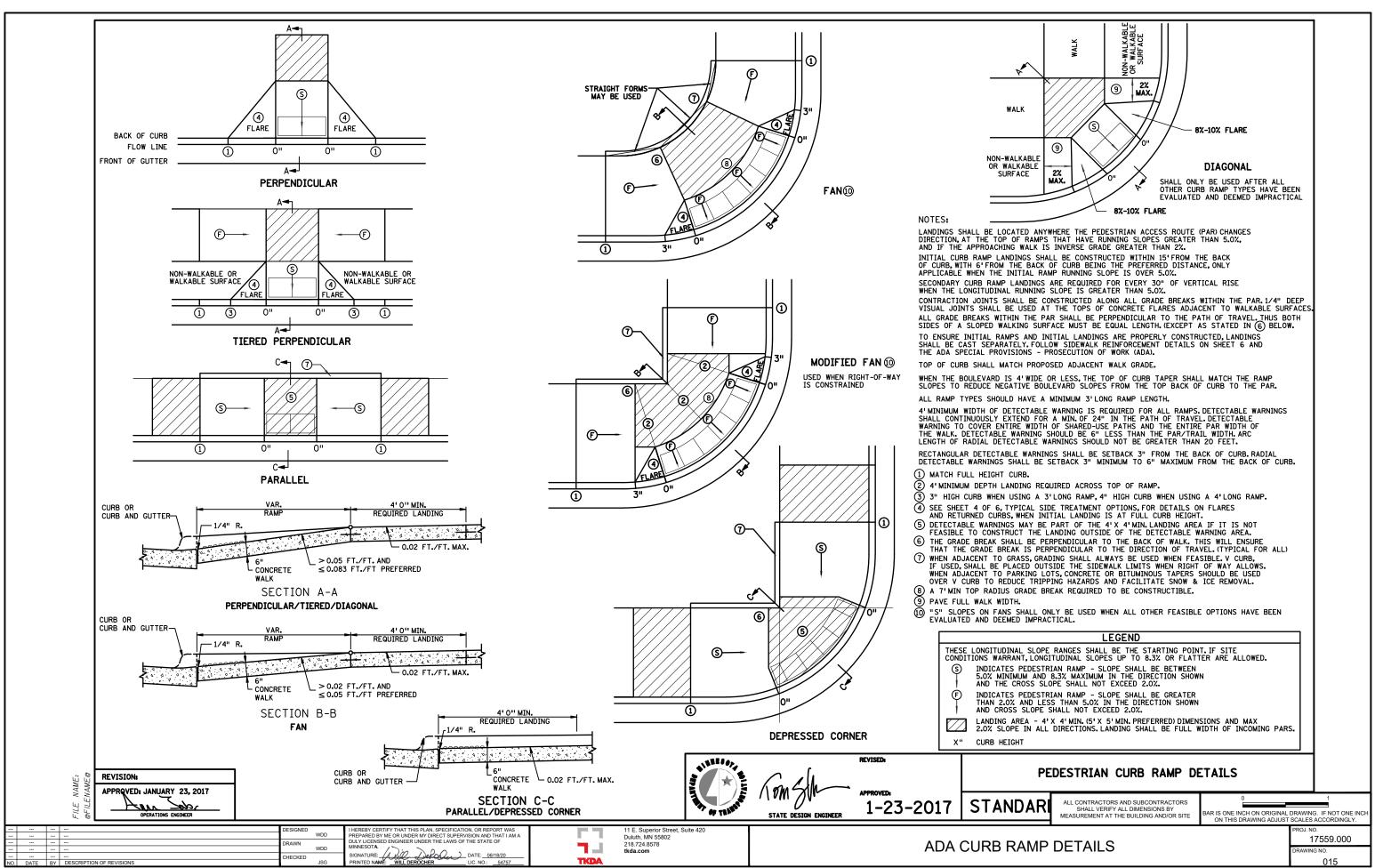
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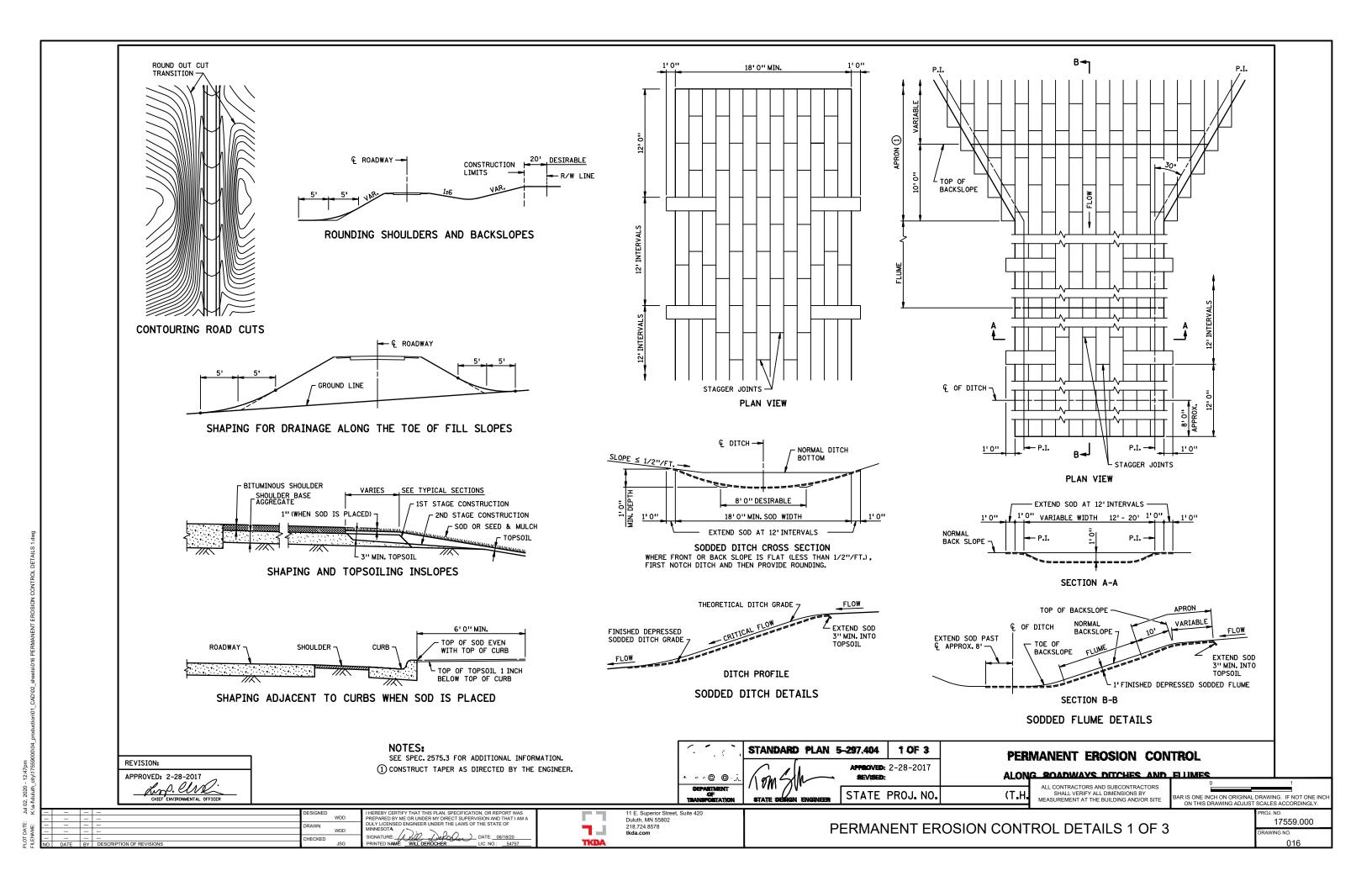
DETAILS 3 OF 3

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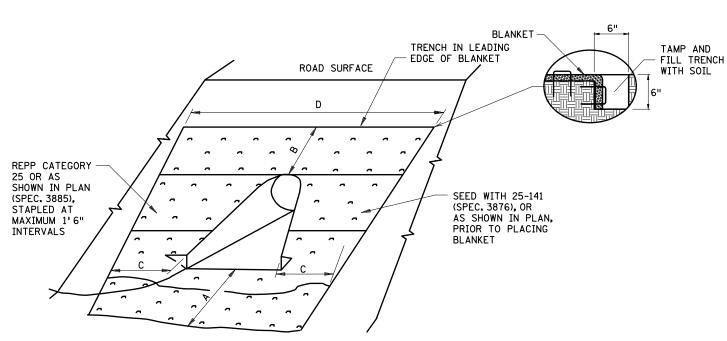
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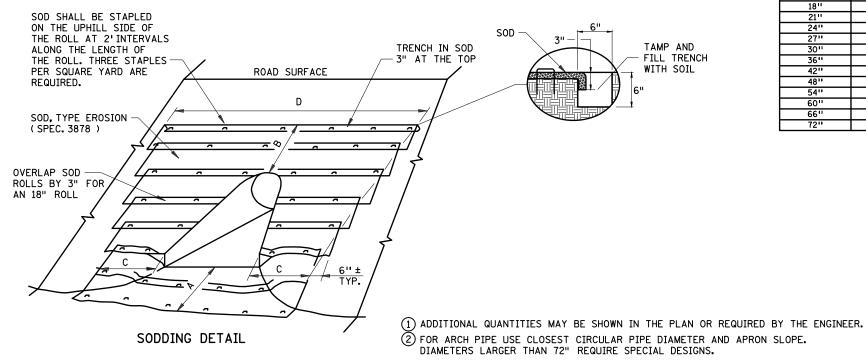


APPROVED: JANUARY 8, 2020

Main Kawowsi

CHIEF ENVIRONMENTAL OFFICER





CULVERT INLET APRON ①										
CULVERT DIAMETER ②		SOD OR REPP (SQ. YDS.)								
	CIRCULAR AND ARCH PIPE METAL APRON (PLATE 3123, PLATE 3122)	CIRCULAR AND ARCH PIPE CONCRETE APRON (PLATE 3100, PLATE 3110)	ARCH PIPE METAL SAFETY APRON	ARCH PIPE	CORRUGATED METAL PIPE SAFETY APRON 1:6 SLOPE	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:4 SLOPE (PLATE 3128)	"A"	''B''	''C''	''D''
15"	9	9	8	8	N/A	N/A	3'	1.5'	3'	13'
18"	13	12	12	14	16	N/A	3'	3'	3'	16'
21''	14	14	14	16	18	14	3'	3'	3'	17'
24"	16	15	16	19	21	17	3'	3'	3'	18'
27''	N/A	20	N/A	N/A	N/A	N/A	3'	4.5'	3'	20'
30"	23	22	25	30	32	N/A	3'	4.5	3'	22'
36"	34	34	39	48	51	37	4.5'	4.5'	4.5'	27'
42"	43	40	51	64	N/A	N/A	4.5'	6'	4.5'	30'
48''	54	50	66	82	N/A	N/A	4.5'	7.5'	4.5'	34'
54''	65	58	81	102	N/A	N/A	4.5'	9'	4.5'	37'
60''	69	59	91	115	N/A	N/A	4.5'	91	4.5'	39'
66"	69	63	N/A	N/A	N/A	N/A	4.5'	9'	4.5'	39'
72''	78	72	99	122	N/A	N/A	4.5'	10.5'	4.5'	41'

			CULVERT (DUTLET AF	PRON ①					
	SOD OR REPP (SQ. YDS.)									
CULVERT DIAMETER ②	CIRCULAR AND ARCH PIPE METAL APRON (PLATE 3123, PLATE 3122)	ARCH PIPE	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:4 SLOPE (PLATE 3148)	ARCH PIPE	CORRUGATED METAL PIPE SAFETY APRON 1:6 SLOPE	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:4 SLOPE (PLATE 3128)	''A''	"B"	''C''	ייםיי
15"	10	10	9	10	N/A	N/A	4.51	1.5'	3'	13'
18"	13	13	12	14	15	N/A	6'	1.5'	3'	14'
21''	16	14	16	18	19	15	6'	1.5'	3'	15'
24''	18	18	18	21	22	18	7.5'	1.5'	3'	16'
27''	N/A	19	N/A	N/A	N/A	N/A	7.51	1.5'	3'	17'
30"	23	23	24	28	29	N/A	91	1.5'	3'	18'
36"	36	35	38	47	48	37	10.5'	1.5'	4.5'	231
42"	43	40	47	58	N/A	N/A	12'	1.5'	4.5'	25'
48''	50	46	57	70	N/A	N/A	13.5'	1.5'	4.5'	27'
54''	57	50	67	84	N/A	N/A	15'	1.5'	4.5'	291
60"	74	63	90	113	N/A	N/A	16.5'	1.5'	6'	33'
66"	75	67	N/A	N/A	N/A	N/A	16.5'	1.5'	6'	33'
72''	77	70	92	114	N/A	N/A	16.5'	1.5'	6'	34'

REPP = ROLLED EROSION PREVENTION PRODUCT.

AREA SHOWN IN SQUARE YARDS IS FOR ONE CULVERT END.

QUANTITIES ARE CALCULATED TO INCLUDE SOD REQUIRED TO PROVIDE A 3"OVERLAP ON ALL 18" WIDE ROLLS. THIS ALLOWS FOR SHRINKAGE OF THE SOD.

FOR PIPE ARCHES USE EQUIVALENT PIPE DIAMETER TO APPROXIMATE AREA.

FOR CORRUGATED POLYETHYLENE PIPE METAL APRON (PLATE 3129), USE THE METAL APRON COLUMN (PLATE 3123).

AREAS AND DIMENSIONS ARE APPROXIMATE AND ARE BASED ON APRON SIDE SLOPES OF NO STEEPER THAN 1:2, UNLESS INDICATED AS FOR SAFETY APRONS.

CARE SHOULD BE TAKEN IN SELECTING SOD TO STABILIZE THE APRON. RIP-RAP SHOULD BE USED FOR FLOW VELOCITIES GREATER THAN 6 FPS.



PERMANENT EROSION CONTROL

TURF ESTABLISHMENT DETAIL AT CULVERT ENDS

ALL CONTRACTORS AND SUBCONTRACTORS SHALL VERIFY ALL DIMENSIONS BY MEASUREMENT AT THE BUILDING AND/OR SITE

SAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INC ON THIS DRAWING ADJUST SCALES ACCORDINGLY.

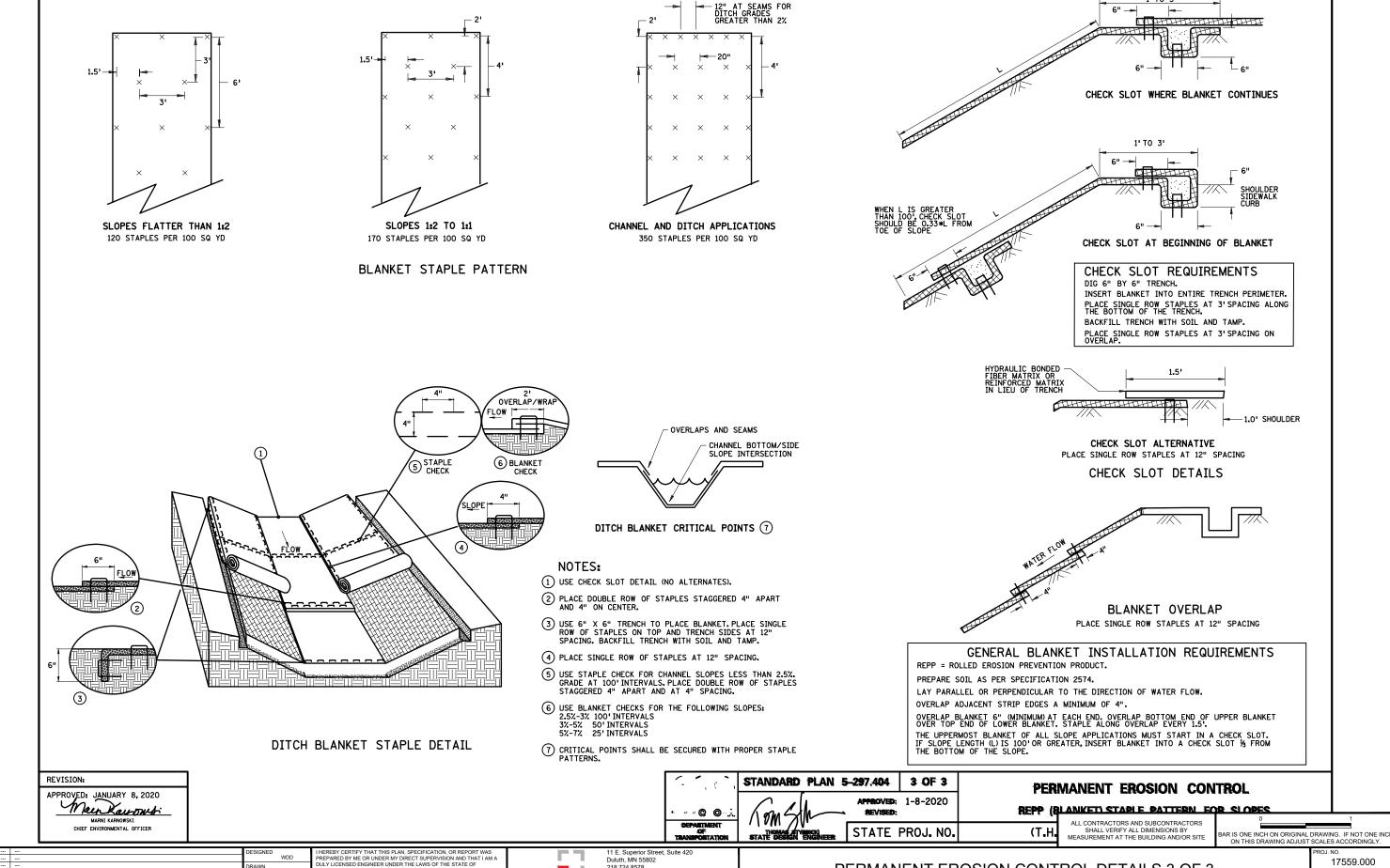
PERMANENT EROSION CONTROL DETAILS 2 OF 3

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PERMANENT EROSION CONTROL DETAILS 3 OF 3