

Green Road Temporary Contractor Parking

Phase 2

U of M Project Number: P00011094

Building Number: (Land Improvement)

Building Address: 3300 Plymouth Road

University Of Michigan Ann Arbor, MI

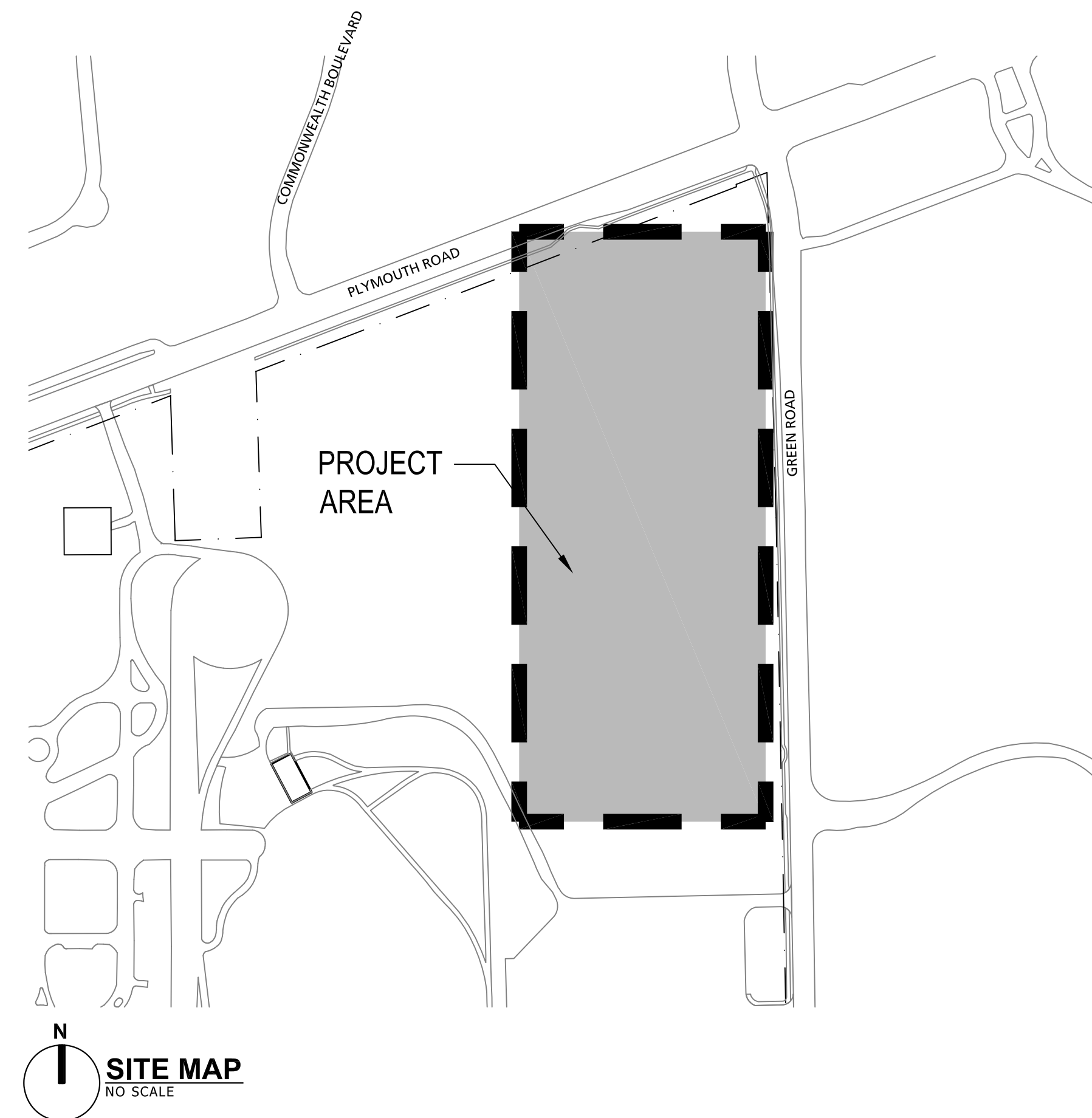
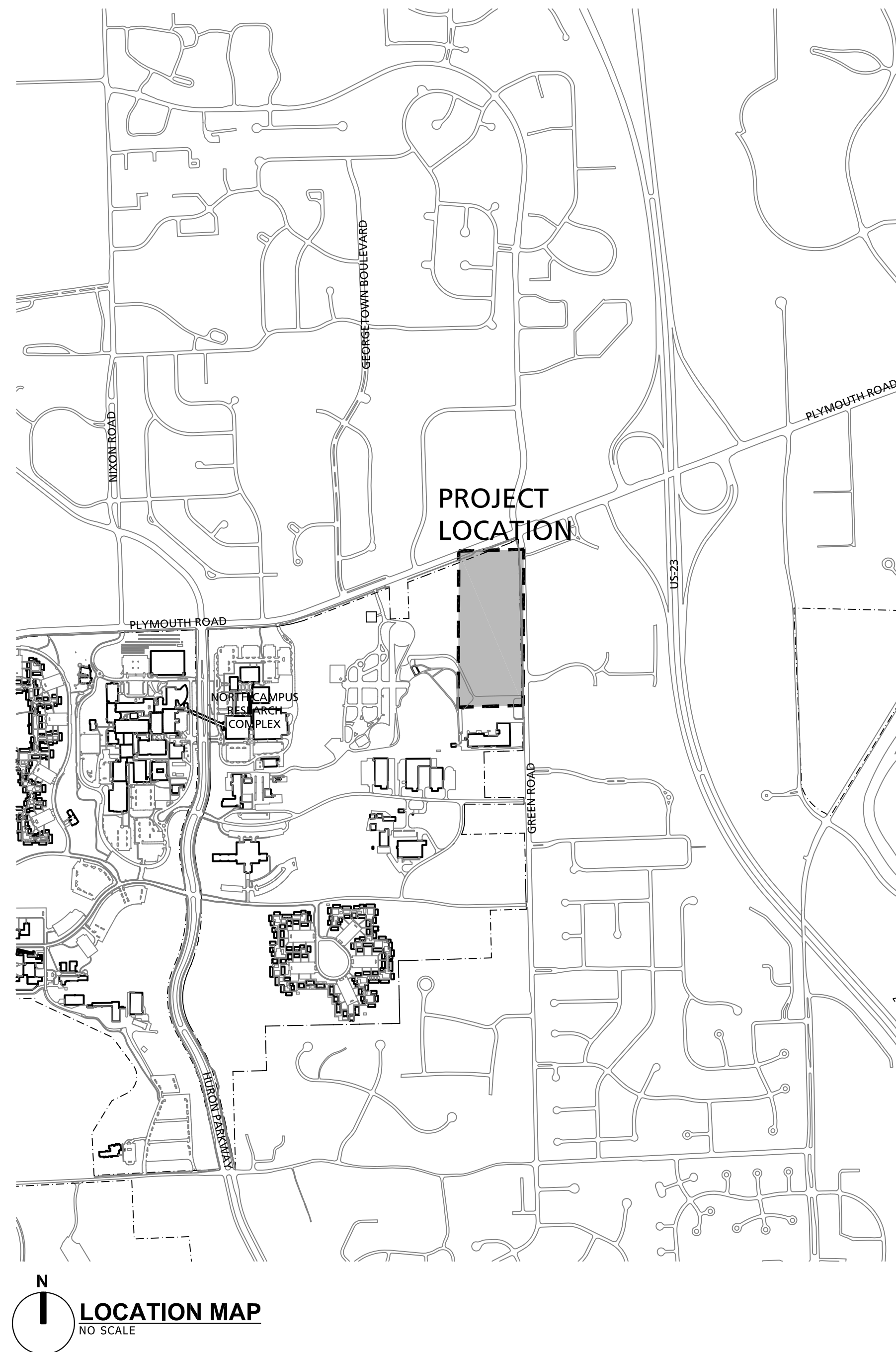
Project Overview

PHASE 2: CONSTRUCTION OF A TEMPORARY GRAVEL CONTRACTOR PARKING LOT INCLUDING SOIL EROSION AND SEDIMENTATION CONTROL AND STORMWATER MANAGEMENT.

Applicable Codes

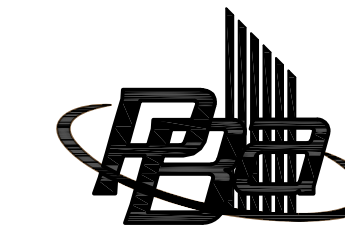
MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION 2018
MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES 2017
U-M DESIGN GUIDELINES AND STANDARD DETAILS

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Index Of Sheets

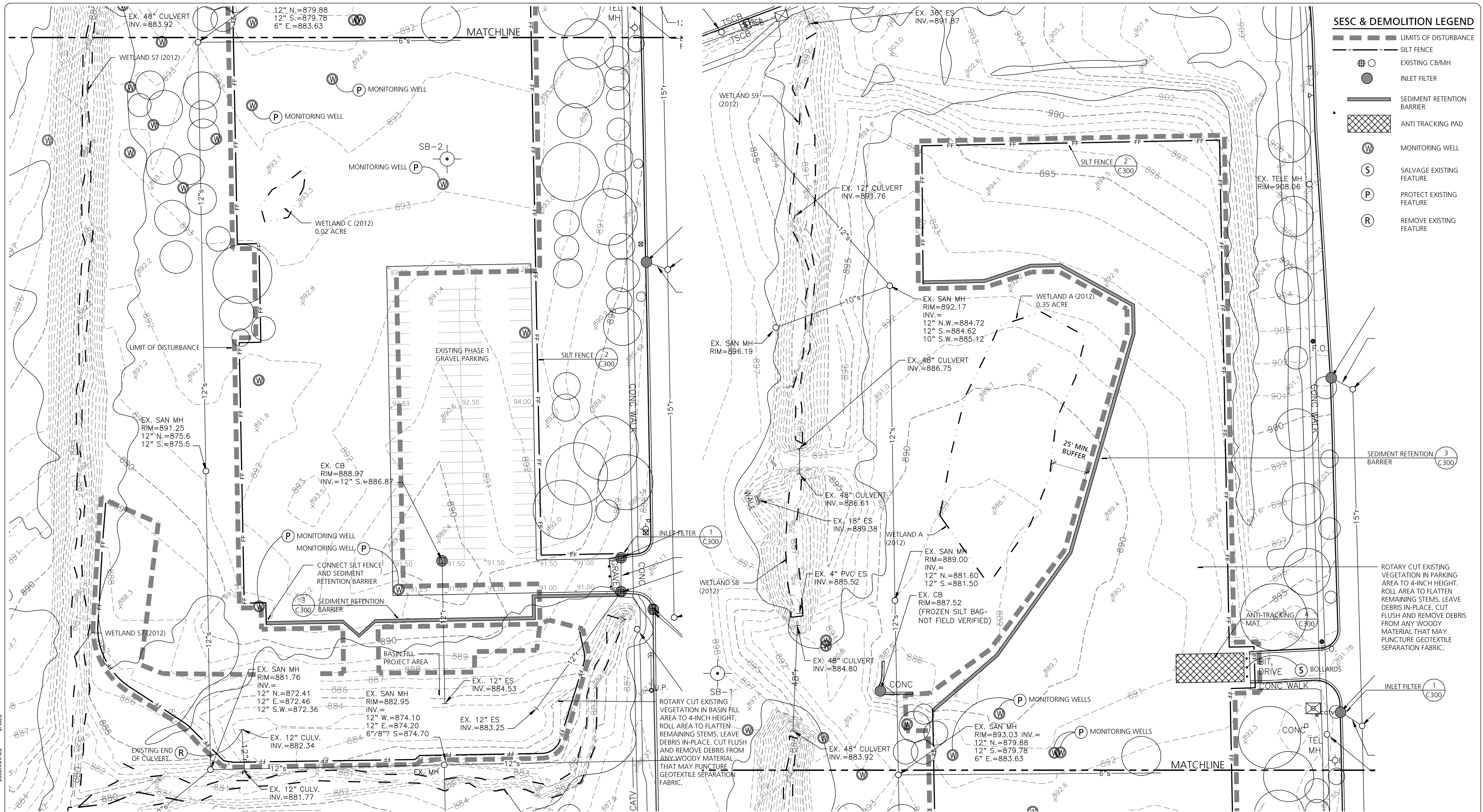
- New or Revised Sheet In This Issue
- Non-Revised Sheet In This Issue
- × Removed Sheet

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Date	Description	Issue
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04/27/2020	OWNER REVIEW	
06/11/2021	OWNER REVIEW	

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SESC & DEMOLITION LEGEND

- LIMITS OF DISTURBANCE
- - - EXISTING CB/MH
- INLET FILTER
- INLET FILTER
- SEDIMENT RETENTION BARRIER
- ▨ ANTI TRACKING PAD
- MONITORING WELL
- SALVAGE EXISTING FEATURE
- PROTECT EXISTING FEATURE
- REMOVE EXISTING FEATURE

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M. Pinegar-Koster
 U of M DESIGN SUPERVISOR

APPROVED BY
Beckett & Raeder, Inc.

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 B. Barrick B. Barrick
 DESIGNED BY REVIEWED BY

NO.	DATE	DESCRIPTION
1	06/11/2021	PERMITTING
2	04/27/2020	OWNER REVIEW
3	03/18/2020	OWNER REVIEW
4		ISSUED FOR REVISIONS
5		DATE

Land Improvement

Green Road Temporary Contractor Parking

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 University of Michigan
 Ann Arbor, MI

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P00011094
 U of M PROJECT NO. BLDG NO.

SHEET TITLE

SESC and Demolition Plan

SHEET NO.

C100

SHEET NO. OF SHEET FILE NO.

UM GENERAL SESC NOTES

- REFER TO NOTES ON SHEET EC100 FOR SOIL CONTAMINATION AND HANDLING INFORMATION.
- MANAGEMENT AND DISPOSAL OF REGULATED WASTE MATERIALS. CONTRACTOR SHALL COORDINATE WITH EHS-HAZARDOUS MATERIALS MANAGEMENT (HMM) PROGRAM AT (753-4568) FOR THE REMOVAL OF ALL REGULATED WASTE MATERIALS. REGULATED WASTE MATERIALS INCLUDE, BUT ARE NOT LIMITED TO: USED CHEMICAL PRODUCTS, PAINTS, SOLVENTS, ADHESIVES, OILS, GREASES, CLEANERS, DEGREASERS, CONTAMINATED OR OILY RAGS, GLYCOLS, HEAT TRANSFER FLUIDS, AND BOILER CHEMICALS. A REPRESENTATIVE FROM THE EHS-HMM PROGRAM SHALL SIGN ALL WASTE DISPOSAL MANIFESTS FOR REGULATED WASTES. WASTE MATERIALS SHALL BE STAGED FOR PICK UP IN AREAS THAT ARE EASILY ACCESSIBLE TO EHS-HMM STAFF. WASTE CONTAINERS SHALL BE STORED ON A HARD SURFACE SUCH AS ASPHALT, CONCRETE, OR TILED FLOORING. ALL WASTE CONTAINERS SHALL BE LABELED WITH EITHER A HAZARDOUS WASTE LABEL, OR A NON RCRA REGULATED WASTE LABEL AS APPROPRIATE. LABELS SHALL REMAIN VISIBLE, AND SHALL BE COMPLETED LEGIBLY. LABELS MAY BE OBTAINED BY CALLING EHS-HMM PROGRAM OFFICE. ALL CONTAINERS SHALL BE TIGHTLY CLOSED WHEN NOT ACTIVELY BEING FILLED. CONTAINERS SHALL BE INSPECTED DAILY FOR LEAKS, CLOSURE, LABELING AND CONTAINER INTEGRITY. CONTRACTOR SHALL PROVIDE U OF M EHS WITH MATERIALS SAFETY DATA SHEETS FOR ALL CHEMICALS USED IN THE PROJECT. CONTRACTOR SHALL CLEAN UP ALL SPILLS IMMEDIATELY. FOR SPILLS
- CONCRETE, ASPHALT & SAWCUTTING WORK
 UM PROJECTS SHALL NOT DISCHARGE TO THE SURFACE WATERS OF THE STATE ANY WASTEWATER GENERATED FROM CUTTING, GRINDING, DRILLING, OR HYDRODEMOLITION OF CONCRETE, INCLUDING ASPHALT WITHOUT AUTHORIZATION UNDER AN NPDES WASTEWATER DISCHARGE PERMIT.

- THE FOLLOWING REQUIREMENTS APPLY:
- DISCHARGE OF WATER, DUST, OR DEBRIS FROM CONCRETE AND ASPHALT WORK TO STORM OR SANITARY SYSTEMS IS PROHIBITED.
 - STORM DRAINS MUST BE PROTECTED FROM DUST AND DEBRIS.
 - ANY WATER USED DURING CONCRETE AND ASPHALT WORK (INCLUDING SWEEPING AND SAW-CUTTING) MUST BE CONTAINED AND COLLECTED FOR PROPER DISPOSAL. SUGGESTED CONTROLS INCLUDE WET VACUUM, OR ABSORBENTS.
 - GOOD HOUSEKEEPING PRACTICES MUST BE EMPLOYED AT THE JOBSITE. MINIMIZE DUST.
 - PROJECTS SHALL NOT DISCHARGE TO THE SURFACE WATERS OF THE STATE ANY WASTEWATER GENERATED FROM CUTTING, GRINDING, DRILLING, HYDRO-DEMOLITION OF CONCRETE WITHOUT AUTHORIZATION UNDER A NPDES WASTEWATER DISCHARGE PERMIT.
- CONCRETE AND GROUT WASHOUT
 - DO NOT DISCHARGE CONCRETE/GROUT WASHOUT INTO STORM DRAINS, CATCH BASINS OR TO THE SANITARY SEWER SYSTEM. PERFORM WASHING OF CONCRETE TRUCKS IN DESIGNATED AREAS OR AN APPROVED OFFSITE LOCATION.
 - DESIGNATED AREAS SHOULD BE CLEARLY LABELED. THEY SHOULD BE IN A PIT TO PREVENT RUN-OFF OF WASTE WATER. PLACE DESIGNATED AREAS A MINIMUM OF 50 FEET FROM STORM DRAINS, BODIES OF WATER AND DITCHES. ALL DESIGNATED AREAS SHOULD BE LINED TO PREVENT SEEPAGE AND SHOULD HAVE A BARRIER.
 - ALTERNATIVE TO A DESIGNATED AREA: PROVIDE A CONCRETE BOX. IF ONLY A SMALL OF CONCRETE WASHINGS IS TO OCCUR, ONE OPTION IS TO LINE A ROLL-OFF BOX. FOR VERY SMALL PROJECTS THIS COULD BE DONE WITH A DRUM.
 - ONCE CONCRETE WASHOUT HAS HARDENED, BREAK UP AND DISPOSE OF PROPERLY. DISPOSAL OF HARDENED CONCRETE/GROUT SHOULD OCCUR ON A REGULAR BASIS.
 - WASHOUT FACILITIES MUST BE CLEANED, OR NEW FACILITIES PROVIDED ONCE THE WASHOUT AREA IS 75% FULL.

- FERTILIZER
 USE ONLY PHOSPHORUS-FREE FERTILIZERS ON TURFGRASS. PHOSPHORUS MAY BE ADDED TO TURFGRASS ONLY IF SOILS ARE TESTED (A MINIMUM OF ONCE EVERY FOUR (4) YEARS) AND A NEED FOR PHOSPHORUS IS DEMONSTRATED. PHOSPHORUS FERTILIZERS SHALL BE APPLIED TO LANDS THAT PERMITTEE OWNS OR OPERATES ONLY AS PRESCRIBED IN THE SOIL TEST RESULTS. PROVIDE EHS EP3 WITH SOIL TESTING RESULTS IF PHOSPHORUS IS PROPOSED FOR USE ON TURFGRASS. SEEDING OR OTHER STABILIZATION SHALL BE REQUIRED IMMEDIATELY TO AREAS WHICH HAVE BEEN DAMAGED BY RUNOFF.
- DEWATERING
 REFER TO GROUNDWATER CONTAMINATION AND HANDLING NOTES ON SHEET EC100.
- CRUSHED CONCRETE
 DUE TO THE POTENTIAL FOR LEACHATE FROM CRUSHED CONCRETE TO IMPACT SURFACE WATERS, AVOID WHERE FEASIBLE AND PRACTICAL THE USE OF CRUSHED CONCRETE ON SITE LOCATIONS WHERE THERE IS A POTENTIAL FOR RUNOFF TO ENTER STORM DRAINS AND WATERS OF THE STATE. EHS RECOMMENDS THE PROJECT UTILIZES CLEAN LIMESTONE (NO FINES) WHERE SURFACE WATERS MAY BE IMPACTED BY RUNOFF.

SESC PROJECT DATA

PARCEL ID.: 09-09-23-200-012
 LEGAL DESCRIPTION: PRT OF NW 1/4 OF SEC 23 & PRT OF SW 1/4 SEC 14, T25, R6E. BEG AT N 1/4 COR OF SD SEC 23, TH S 0 DEG 35 MIN W 646.88 FT TH N 89 DEG 25 MIN W 410 FT, TH N 0 DEG 35 MIN E 262.32 FT, TH N 89 DEG 51 MIN 20 SEC W 909.61 FT, TH N 0 DEG 15 E 366.48 FT, TH N 89 DEG 33 MIN 20 SEC E 182.87 FT, TH N 0 DEG 01 MIN W 423.77 FT TH N 70 DEG 47 MIN 30 SEC E 1206.28 FT, TH S 810.12 FT TO POB, EXC THAT PORTION USED FOR PUBLIC ROAD
 PARCEL SIZE: 29.05 ACRES
 DISTURBED AREA: 1.24 ACRES
 DISTANCE TO WATER OF THE STATE: 10 FT TO EAST BRANCH OF MILLERS CREEK

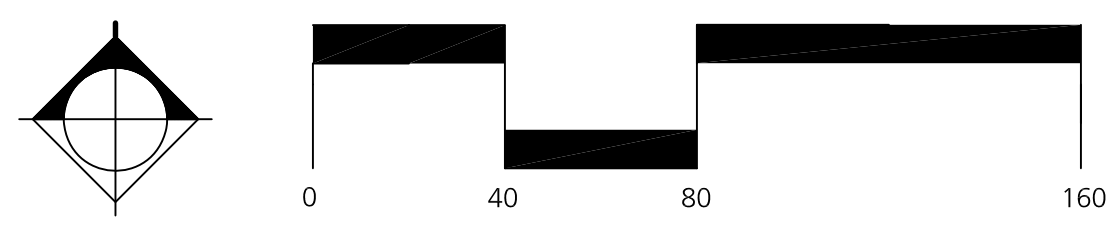
SOIL INFORMATION:
 NATURAL RESOURCES CONSERVATION SERVICE SOIL SURVEY INDICATES THE SITE IS COMPRISED OF WAWASEE LOAM 2-6% SLOPES (WAWABB). THE SOIL DESCRIPTION INDICATES THAT WAWASEE LOAM IS LARGELY COMPRISED OF LOAMY TILL AND IS WELL DRAINED. HOWEVER, THE SITE WAS PREVIOUSLY DEVELOPED AND INCLUDES A VARIETY OF DISTURBED AND FILL SOILS. REFER TO THE PROJECT GEOTECHNICAL INVESTIGATION REPORT FOR ADDITIONAL INFORMATION.

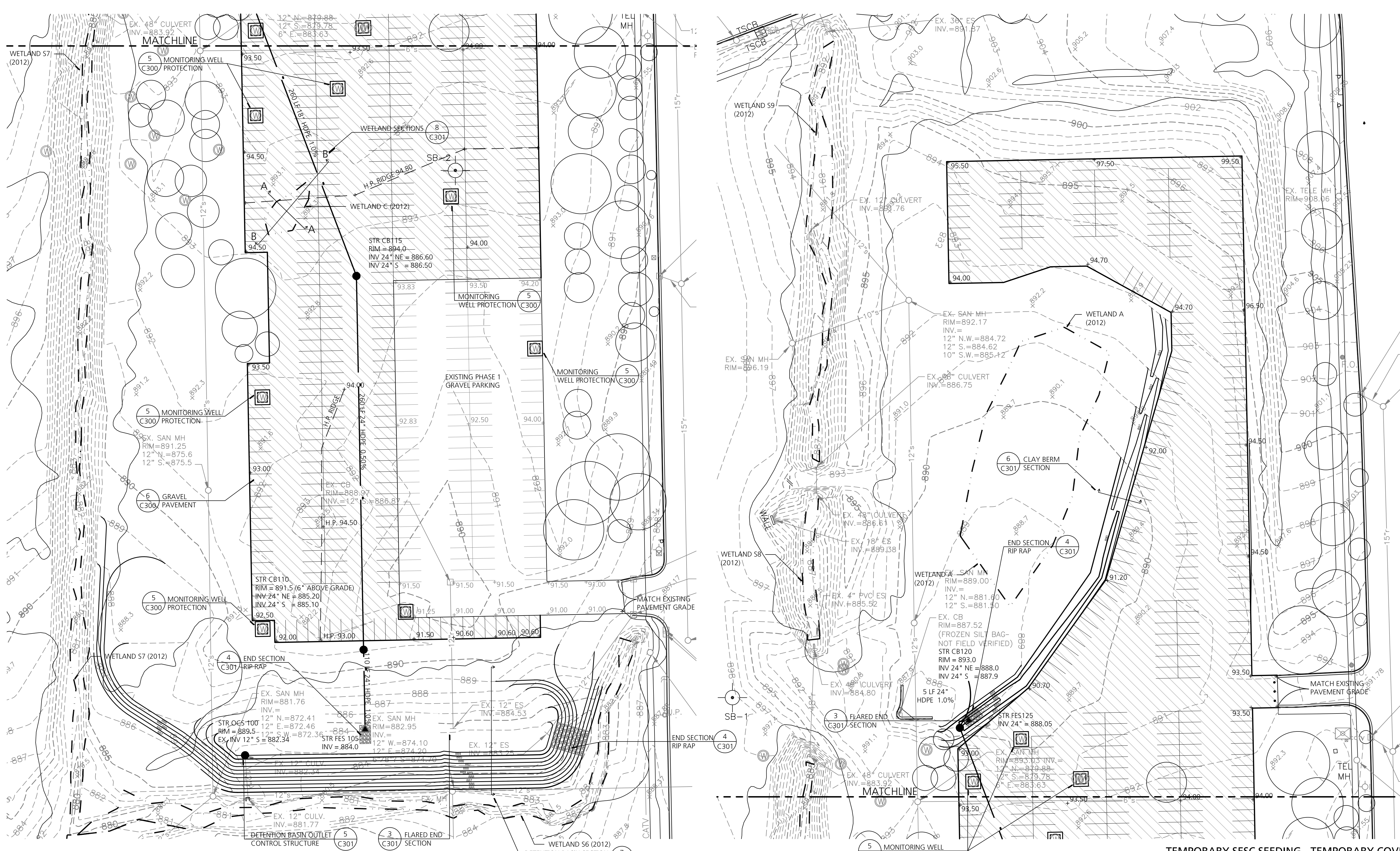
PROJECT DURATION:
 SESC CONTROLS SHALL REMAIN IN PLACE AND CONTRACTOR SHALL MAINTAIN CONTROLS FOR DURATION OF TEMPORARY PARKING LOT UNTIL SITE RESTORATION IS ESTABLISHED AND UM STORMWATER OPERATOR APPROVES REMOVAL.

ESTIMATED DURATION NOV. 2019 - MAR. 2025
 (INCLUDES PREVIOUSLY INSTALLED PHASE 1)

PROJECT SESC NOTES

- SESC CONTROLS SHALL REMAIN IN PLACE AND CONTRACTOR SHALL MAINTAIN CONTROLS FOR DURATION OF TEMPORARY PARKING LOT UNTIL SITE RESTORATION IS ESTABLISHED AND UM STORMWATER OPERATOR APPROVES REMOVAL.
- CONTRACTOR SHALL CLEAN GREEN ROAD TO KEEP FREE OF TRACKED STONE, SOIL, DUST, AND OTHER DEBRIS FOR DURATION OF TEMPORARY PARKING LOT.





UM GENERAL NOTES

1. THE CONTRACTORS SHALL VERIFY LOCATIONS OF ALL U/G UTILITY LINES AND NOTIFY "MISS DIG" 811 PRIOR TO EXCAVATING. THE CONTRACTOR WILL BE RESPONSIBLE TO REPAIR ANY UTILITY LINE DAMAGED BY CONSTRUCTION ACTIVITIES.
2. IF PLAN INFORMATION INDICATES AN EXISTING UNDERGROUND UTILITY IS OR WILL BE OUT OF SERVICE WITHIN THE LIMITS OF THIS CONTRACT, THE CONTRACTOR IS CAUTIONED TO TREAT SUCH A LINE AS IF IT WERE STILL IN SERVICE AND NOTIFY "MISS DIG" WHEN WORKING IN THE AREA OF THE OUT OF SERVICE FACILITY.
3. ALL WORK SHALL BE COMPLETED IN CONFORMANCE WITH CURRENT ADA STANDARDS.
4. ALL MATERIALS, EQUIPMENT AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CURRENT UNIVERSITY OF MICHIGAN STANDARD SPECIFICATIONS FOR CONSTRUCTION AND THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION.
5. THE OMISSION OF ANY CURRENT STANDARD DETAIL DOES NOT RELIEVE THE CONTRACTORS OF THEIR OBLIGATION TO CONSTRUCT ITEMS IN COMPLETE ACCORDANCE WITH U-M AND/OR MDOT AND/OR CITY OF ANN ARBOR STANDARD SPECIFICATIONS.
6. IT IS THE CONTRACTOR'S RESPONSIBILITY FOR INSTALLATION OF SESC CONTROL MATERIALS. THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN INLET FILTER BAGS ON ALL STORM WATER INLETS IN THE VICINITY OF THE PROJECT SITE WHICH MAY RECEIVE STORM WATER RUNOFF FROM THE SITE. THE CONTRACTOR SHALL REMOVE THE INLET FILTER BAGS AT THE CONCLUSION OF THE PROJECT WORK.
7. ALL BARRICADES AND TRAFFIC CONTROL REQUIRED SHALL BE PROVIDED BY THE CONTRACTOR. ALL BARRICADES SHALL HAVE A BOTTOM RAIL WITHIN 3 TO 6 INCHES ABOVE GRADE WITHIN PEDESTRIAN PATHS OF TRAVEL TO NOTIFY PEDESTRIANS WITH CANES OF THE OBSTRUCTION.
8. CONTRACTOR SHALL PROVIDE A PEDESTRIAN DETOUR IN ALL INSTANCES WHERE A SIDEWALK WIDTH IS CLOSED OR REDUCED TO LESS THAN 5 FEET IN WIDTH. THIS INCLUDES BUT NOT LIMITED TO BARRICADES, SIDEWALK CLOSED, DETOUR ARROWS AS OUTLINED IN THE MMUTCD.

9. MATERIAL TESTING WILL BE PROVIDED BY A 3RD PARTY HIRED BY OWNER. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL MATERIAL TESTING.
10. NO EQUIPMENT OR VEHICLES MAY BE PARKED IN LAWN OR LANDSCAPED AREAS WITHOUT PRIOR APPROVAL BY UM PROJECT MANAGER.
11. NO STORAGE OF MATERIALS, PARKING, OR DRIVING IS ALLOWED WITHIN THE LIMITS OF TREE CANOPIES.
12. MAINTAIN VISIBILITY AND ACCESSIBILITY TO FIRE HYDRANTS AND BUILDING FIRE DEPARTMENT CONNECTION LOCATIONS.
13. GOOD HOUSEKEEPING PRACTICES MUST BE EMPLOYED AT THE JOB SITE. MINIMIZE DUST.
14. ALL BROKEN ASPHALT, CONCRETE, & DEBRIS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY REMOVED FROM THE SITE PRIOR TO THE COMPLETION OF THE CONTRACT. NO STOCK PILING WILL BE ALLOWED ON SITE.
15. SEQUENCING OF WORK IS TO BE APPROVED BY PROJECT MANAGER PRIOR TO STARTING CONSTRUCTION.

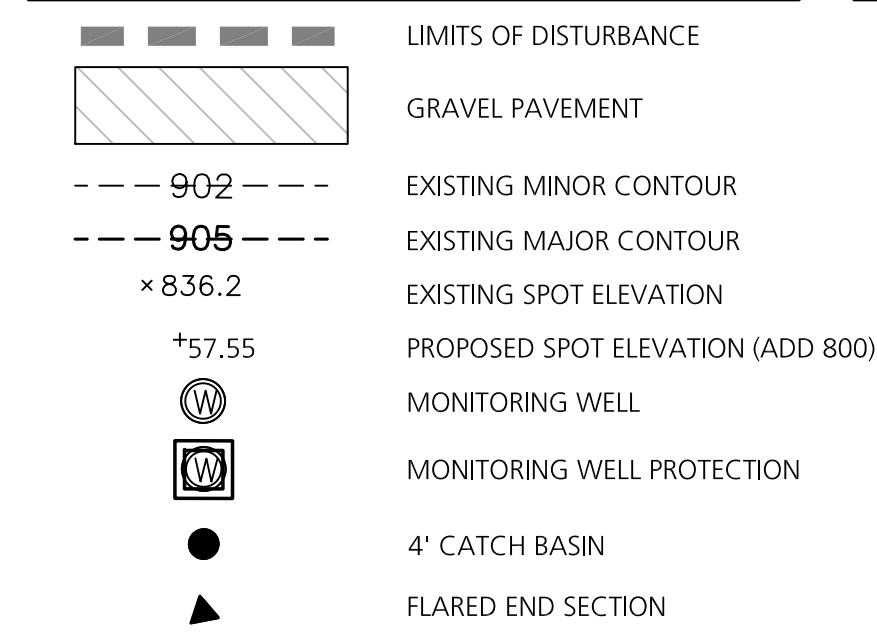
LAYOUT & MATERIALS NOTES

1. ALL PAVEMENT REMOVALS SHALL BE SAWCUT FULL DEPTH AND COORDINATED WITH LAYOUT & MATERIALS / GRADING PLANS. REMOVALS SHALL INCLUDE SUBSOIL/EXISTING BASE MATERIALS TO FULL DEPTH REQUIRED FOR INSTALLATION OF NEW WORK INCLUDING BASE COURSE, UNLESS OTHERWISE DIRECTED BY TESTING LAB OR LANDSCAPE ARCHITECT/ENGINEER.
2. ALL CONCRETE PAVEMENT REMOVALS SHALL BE TO NEAREST JOINT BEYOND INDICATED EXTENT.
3. CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF ALL EXISTING ITEMS TO REMAIN. CONTRACTOR SHALL MAINTAIN CLEAN SAWCUT EDGES FOR PROPOSED WORK TO ABUT. BROKEN EDGES RESULTING FROM CONTRACTOR'S FAILURE TO PROTECT THE EDGE WILL BE SAWCUT BEYOND THE BREAKS AT THE CONTRACTOR'S EXPENSE.

MONITORING WELL PROTECTION

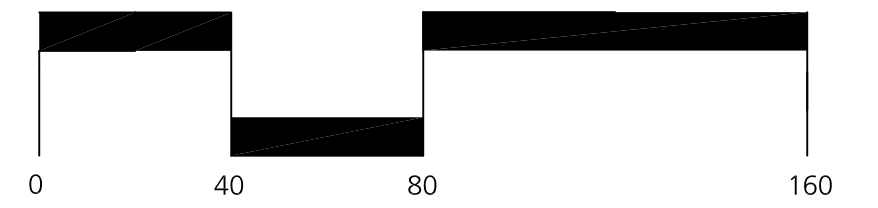
1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROTECT ALL EXISTING MONITORING WELLS. DAMAGE TO THE MONITORING WELLS WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE UNIVERSITY OF MICHIGAN - ENVIRONMENT, HEALTH & SAFETY DEPARTMENT.

LAYOUT AND GRADING LEGEND



TEMPORARY SESC SEEDING - TEMPORARY COVER FOR DURATION OF PARKING USE

1. SCARIFY ALL DISTURBED SOIL AREAS AND SEED WITH "MDOT ENVIRONMENTAL SEEDING (ES)" MIX. PROVIDE DOUBLE JUTE NET EROSION MAT FOR ALL SLOPES EXCEEDING 1V:5H AND FULLY COVERING SWALES AND DETENTION BASINS.



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U of M DESIGN SUPERVISOR

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B. Barrick DESIGN MANAGER
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DESIGNED BY REVIEWED BY

C	PERMITTING	06/11/2021
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MARK	ISSUED FOR REVISIONS	DATE

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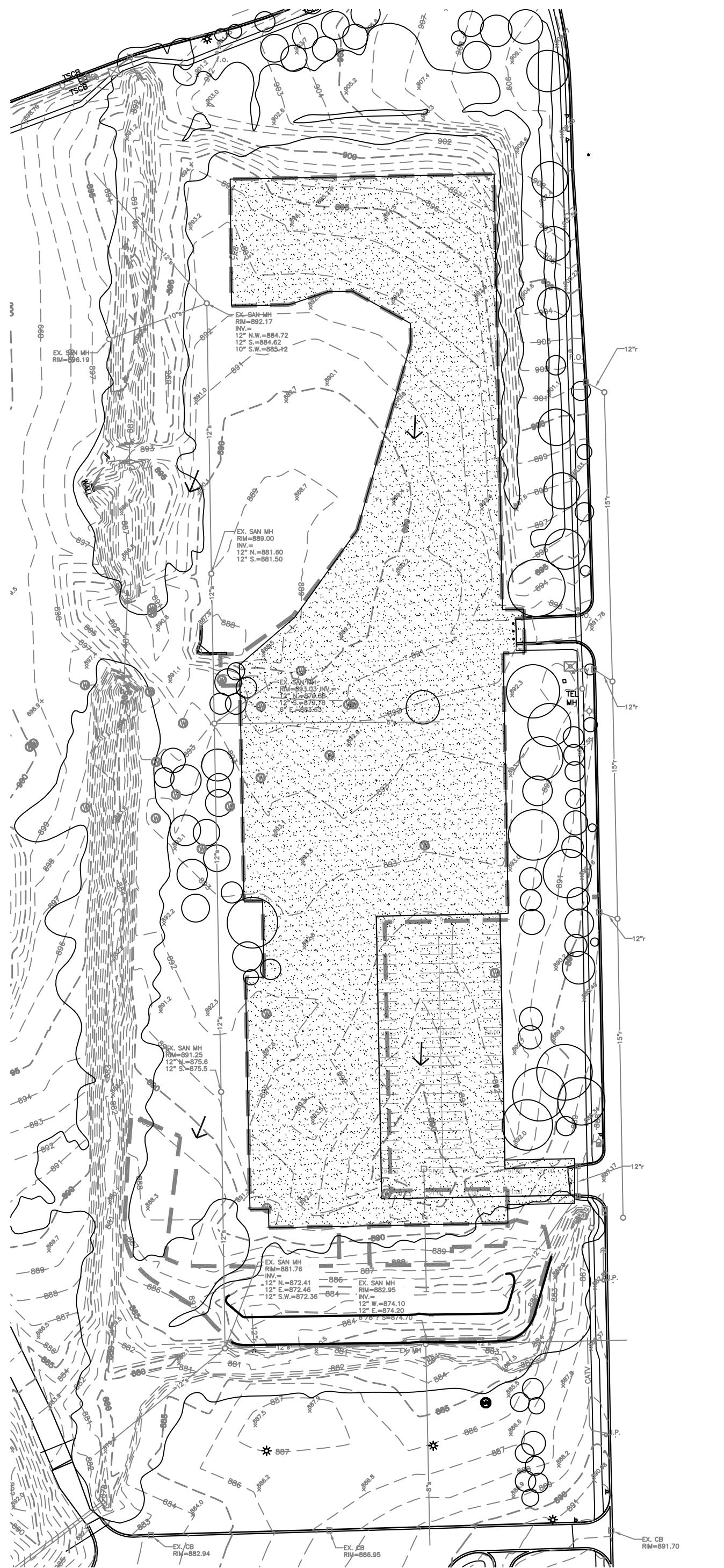
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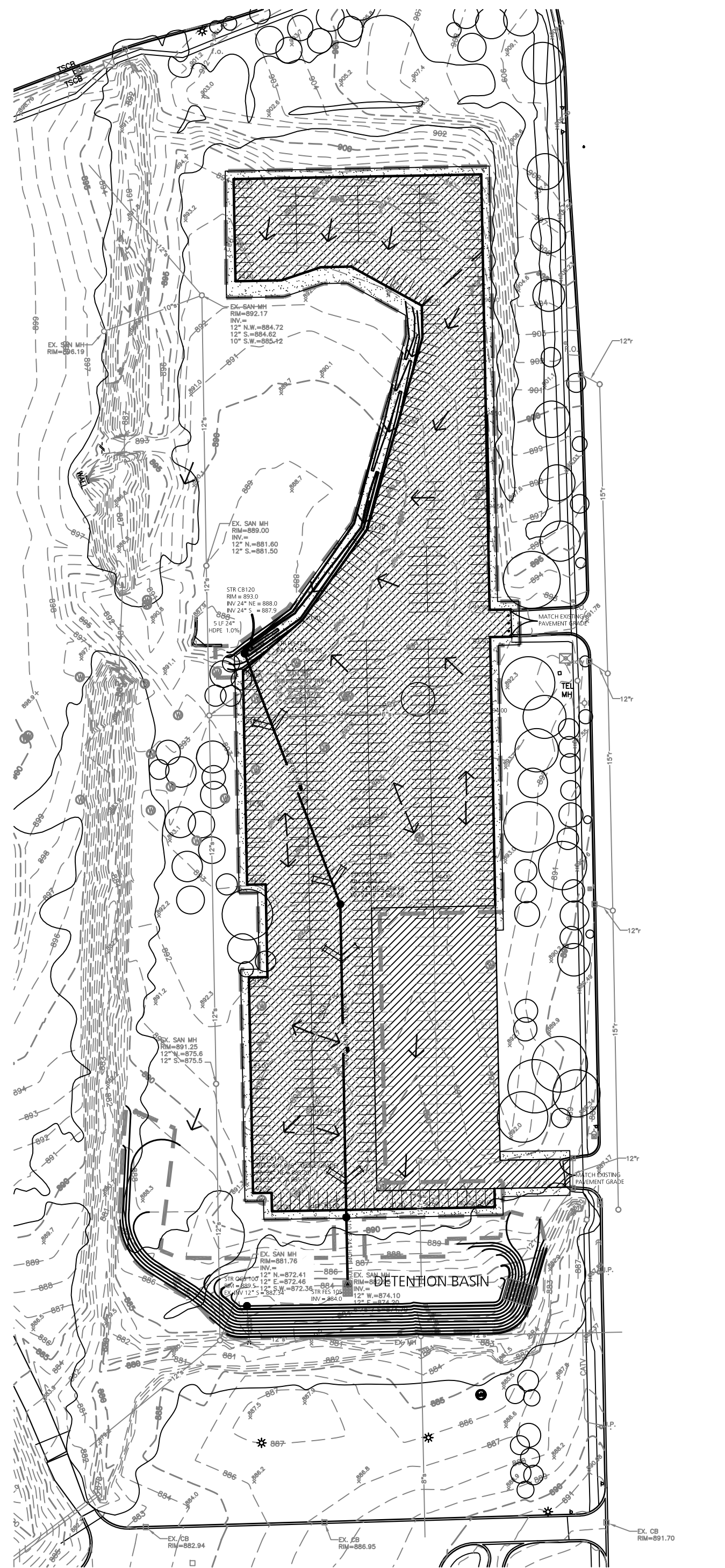
SHEET TITLE
Layout and Materials & Grading Plan

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C200

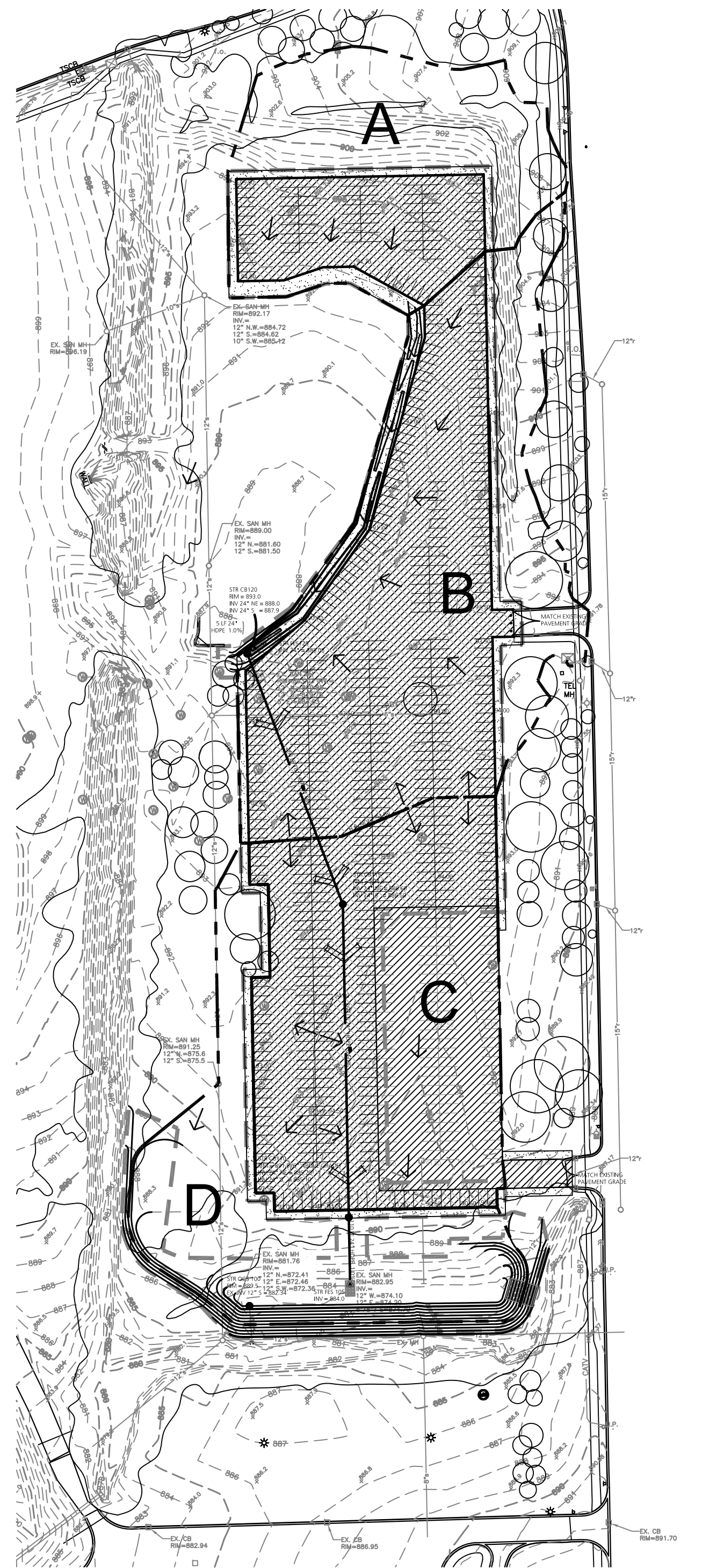
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PRE-CONSTRUCTION



POST-CONSTRUCTION



WATERSHED AREAS

STORMWATER CONVEYANCE CALCULATIONS

STORMWATER DETENTION BASIN VOLUME

CONTOUR ELEVATION	AREA (SF)	VOLUME (CF)
884	4,648	-
885	7,819	6,234
886	11,169	15,728
887	14,665	28,645
888	21,233	46,594

STORMWATER NARRATIVE

- NO NEW CONNECTIONS TO THE CITY STORM SEWER SYSTEM ARE PROPOSED.
- PROPOSED EARTH DISTURBANCE IS 302,392 SF (6.94 ACRES).
- U-M NPDES PERMIT POST CONSTRUCTION STORMWATER MANAGEMENT REQUIREMENTS ARE NOT APPLICABLE SINCE THE PROPOSED IMPROVEMENTS ARE TEMPORARY (LESS THAN FOUR YEARS).
- EXISTING CONDITIONS STORM WATER SUMMARY:

THE EXISTING SITE DRAINS IN TWO DIRECTIONS. THE NORTHERN PORTION OF THE SITE DRAINS TO THE WEST INTO AN EXISTING WETLAND. THE SOUTHERN PORTION OF THE SITE DRAINS TO THE SOUTH INTO AN EXISTING BASIN WHICH HAS AN UNCONTROLLED 12-INCH OUTLET. BOTH WATERSHEDS ULTIMATELY DISCHARGE TO MILLERS CREEK.

EXISTING LAND USE (HYDROLOGIC SOIL GROUP C)

SUBAREA	COVER TYPE	AREA (AC)	CN
A	MEADOW	1.37	71
B	MEADOW	2.63	71
C	MEADOW	2.00	71
D	MEADOW	1.33	71

EXISTING STORMWATER RUNOFF

STORM FREQUENCY	PEAK DISCHARGE (CFS)	VOLUME (CUBIC FEET)
2 YEAR	3,093	10,853
10 YEAR	7,905	23,722
100 YEAR	20,16	57,074

- POST CONSTRUCTION CONDITIONS STORM WATER SUMMARY:

NO NEW CONNECTION TO THE CITY STORM WATER SYSTEM IS PROPOSED. POST CONSTRUCTION STORM WATER RUNOFF WILL BE MANAGED BY A NEW STORM WATER DETENTION BASIN ON THE SOUTH SIDE OF THE SITE. WATERSHEDS "B", "C" AND "D" WILL FLOW OVERLAND AND IN STORM SEWER TO THE DETENTION BASIN. IN ORDER TO MAINTAIN A SOURCE OF RUNOFF TO SUPPORT THE EXISTING WETLAND ON THE NORTHWEST SIDE OF THE SITE, WATERSHED "A" WILL BYPASS THE COLLECTION AND DETENTION SYSTEM AND MAINTAIN EXISTING FLOW VOLUME.

POST CONSTRUCTION LAND USE SUMMARY

SUBAREA	COVER TYPE	AREA (AC)	CN	COMPOSITE CN
A	GRAVEL	0.54	89	78
	MEADOW	0.83	71	
B	GRAVEL	1.96	89	84
	MEADOW	.67	71	
C	MEADOW	2.00	71	71
D	BASIN	.51	98	82
	MEADOW	.82	71	

UNMANAGED POST CONSTRUCTION STORMWATER RUNOFF (NO DETENTION)

STORM FREQUENCY	PEAK DISCHARGE (CFS)	VOLUME (CUBIC FEET)	DIFFERENCE BETWEEN PRE AND POST CONSTRUCTION VOLUME (CUBIC FEET)
2 YEAR	9,202	26,235	15,382
10 YEAR	16,00	45,107	21,385
100 YEAR	30,72	87,386	30,312

POST CONSTRUCTION STORMWATER RUNOFF (WITH DETENTION)

STORM FREQUENCY	PEAK DISCHARGE (CFS)	DETAINED VOLUME (CUBIC FEET)
2 YEAR	1,236	16,186
10 YEAR	2,372	21,791
100 YEAR	6,253	42,156

- THE POST CONSTRUCTION PEAK DISCHARGE IS LESS THAN PRE-CONSTRUCTION PEAK DISCHARGE FOR ALL STORM FREQUENCIES.
- THE POST CONSTRUCTION DETAINED VOLUME IS GREATER THAN INCREASE IN POST CONSTRUCTION RUNOFF VOLUME FOR ALL STORM FREQUENCIES.

- CHANNEL PROTECTION

CHANNEL PROTECTION REQUIREMENTS ARE NOT APPLICABLE SINCE THE PROPOSED IMPROVEMENTS ARE TEMPORARY (LESS THAN FOUR YEARS).

- MINIMUM TREATMENT VOLUME STANDARD - TSS REMOVAL

TSS REMOVAL REQUIREMENTS ARE NOT APPLICABLE SINCE THE PROPOSED IMPROVEMENTS ARE TEMPORARY (LESS THAN FOUR YEARS).

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DESIGNED BY
B. Barrick
DESIGNED BY
B. Barrick
REVIEWED BY
B. Barrick

REVISION	DATE
PERMITTING	06/11/2021
OWNER REVIEW	04/27/2020
OWNER REVIEW	03/18/2020
ISSUED FOR REVISIONS	DATE

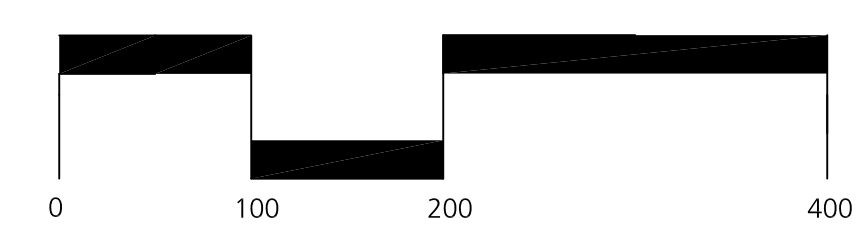
Land Improvement

Green Road Temporary Contractor Parking

North Campus
University Of Michigan
Ann Arbor, MI

UNIVERSITY OF MICHIGAN
ARCHITECTURE, ENGINEERING AND CONSTRUCTION
326 East Hoover, Mail Stop E
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Phone: 734-764-3414
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P00011094
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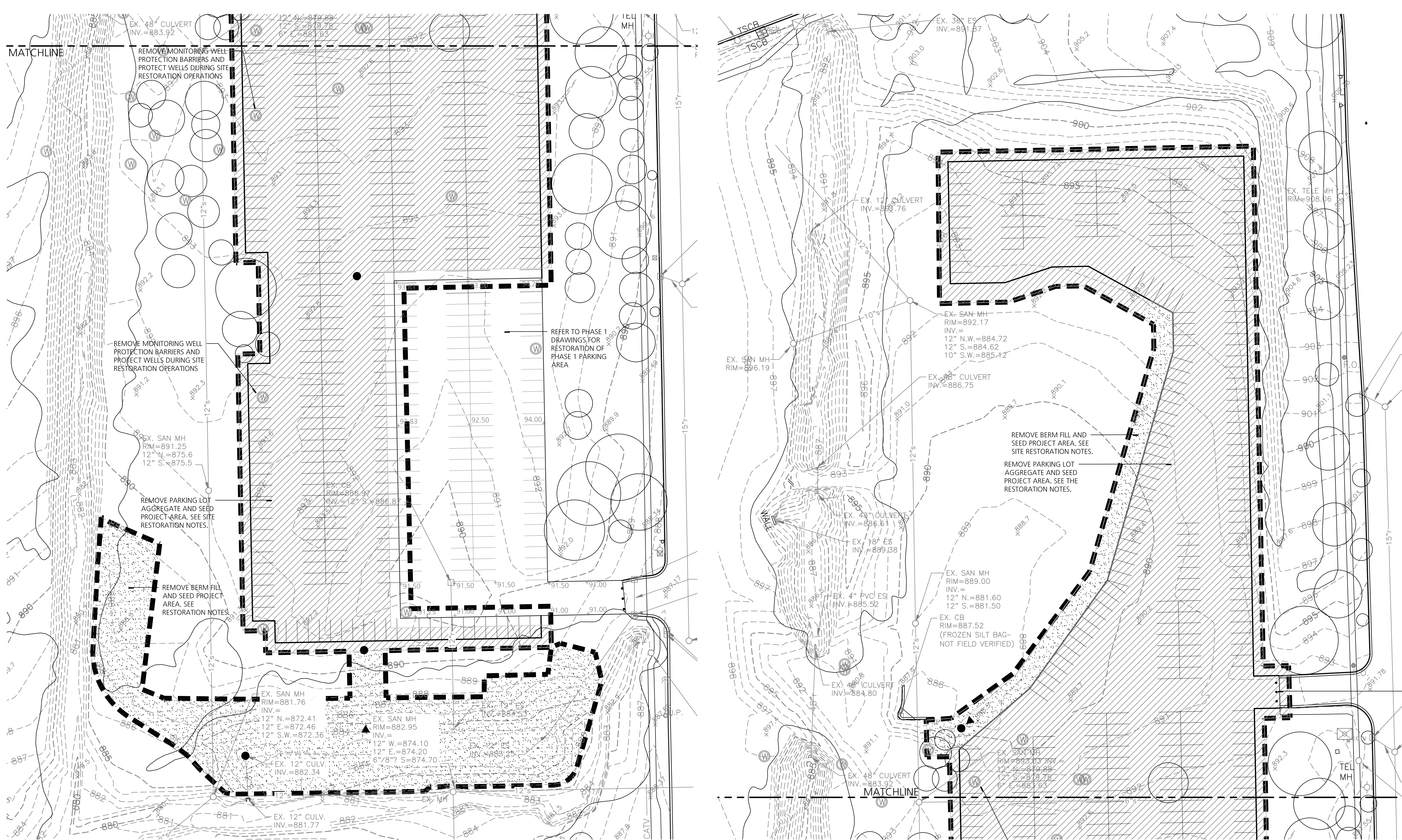
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Stormwater Management Plan
SHEET NO.
C210
SHEET NO. OF SHEET FILE NO.



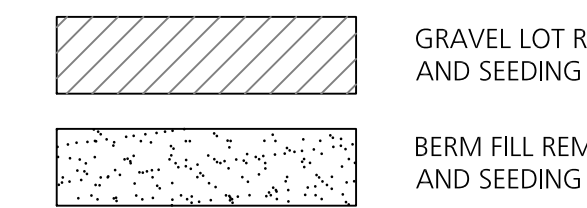
SUSERRAMES SFILES SDATES

STORMWATER MANAGEMENT LEGEND

- GRAVEL
- PERVIOUS OPEN SPACES
- OVERLAND FLOW LINE
- STORMWATER PIPE FLOW LINE
- LIMIT OF DISTURBANCE
- WATERSHED SUBAREA



SITE RESTORATION LEGEND



SITE RESTORATION NOTES

- CAREFULLY REMOVE PARKING LOT AGGREGATE AND BERM FILL FROM GEOTEXTILE SEPARATION FABRIC WITHOUT DAMAGING FABRIC OR CONTACTING UNDERLYING SOIL.
- CONTRACTOR SHALL HAVE AND LEGALLY DISPOSE OF PARKING LOT AGGREGATE AND BERM FILL OFF-SITE.
- REMOVE GEOTEXTILE SEPARATION FABRIC AND LEGALLY DISPOSE.
- SCARIFY EXISTING SOIL TO MINIMUM 6-INCH DEPTH.
- ROUGH GRADE SCARIFIED SOIL IMMEDIATELY PRIOR TO SEEDING OPERATIONS.
- SEED "LOW-PROFILE PRAIRIE SEED MIX" AS PRODUCED BY CARDNO NATIVE PLANT NURSERY AT A RATE OF 38.50 PLS POUNDS PER ACRE. CONTRACTOR SHALL SEED WITH GROUND CONTACT DRILL IMPLEMENT AND PROVIDE HYDRO MULCH COVER APPLIED AS A SEPARATE OPERATION AFTER DRILL SEEDING. PROVIDE DOUBLE JUTE EROSION CONTROL BLANKET ON ALL SLOPES EXCEEDING 1V:5H GRADIENT.
- REMOVE EROSION CONTROL DEVICES WHEN AUTHORIZED BY UM STORMWATER OPERATOR. RESTORATION SEED DISTURBED SOIL PER NOTE 6.

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M. Pinegar-Koster
U of M DESIGN SUPERVISOR

APPROVED BY
Beckett & Raeder, Inc.

REPRESENTING
A. Toomey DESIGN MANAGER
B. Barrick DESIGN MANAGER

DRAWN BY
B. Barrick DESIGNER

DESIGNED BY
B. Barrick REVIEWED BY

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THANK		

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University Of Michigan
Ann Arbor, MI**

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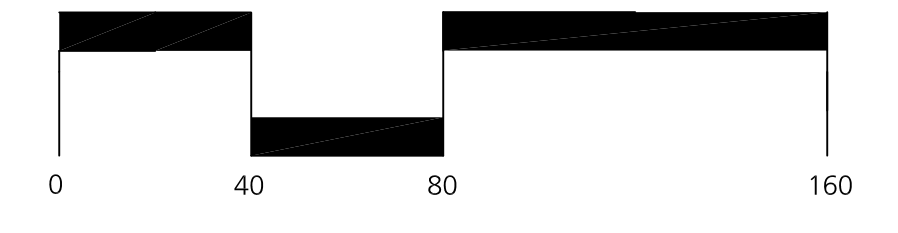
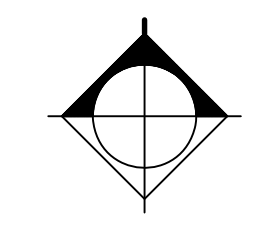
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**Site Restoration
Plan**

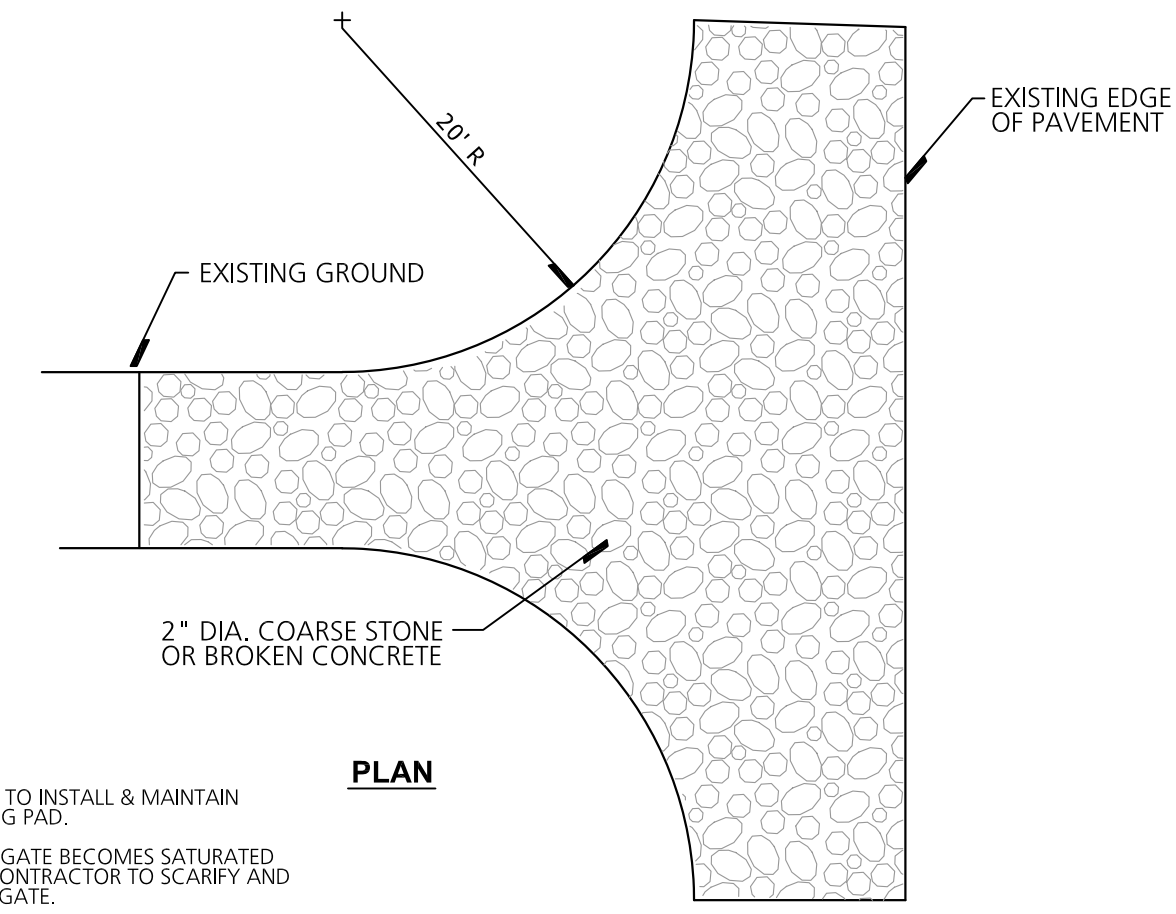
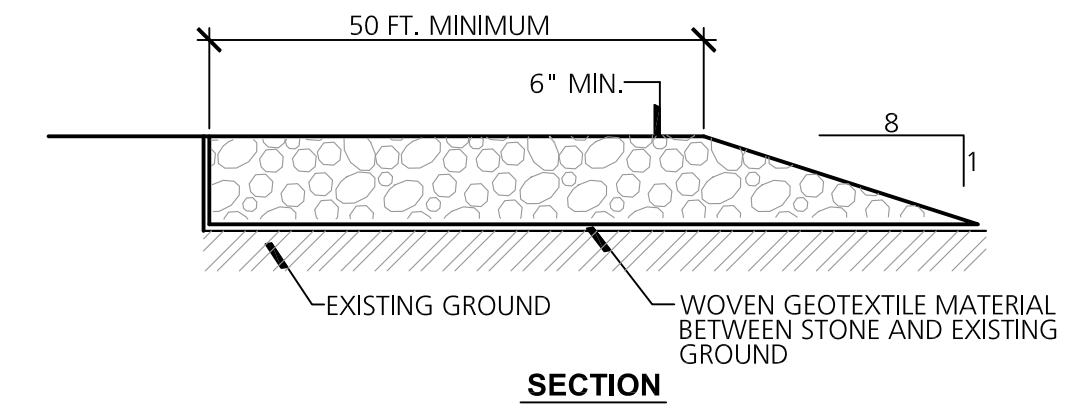
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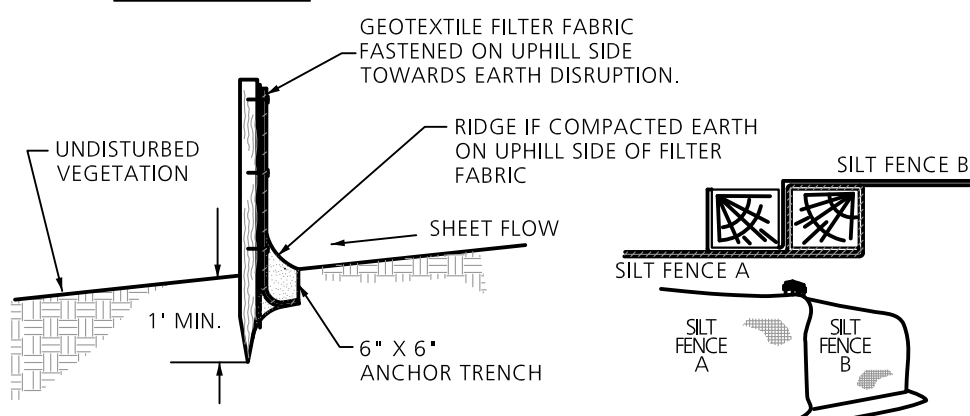
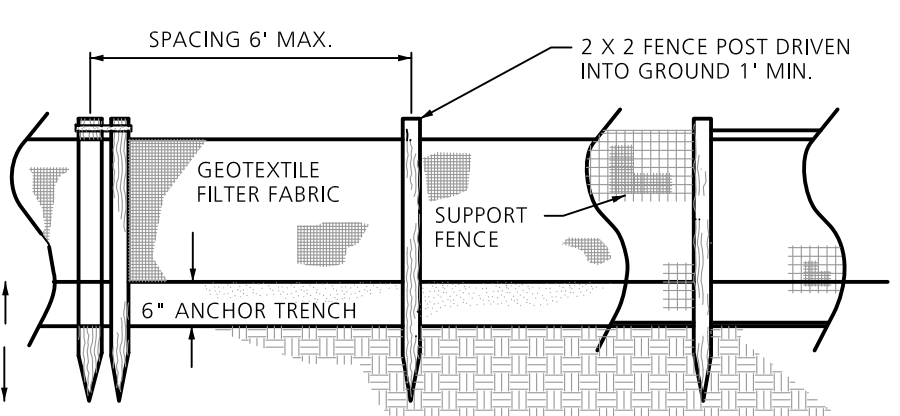
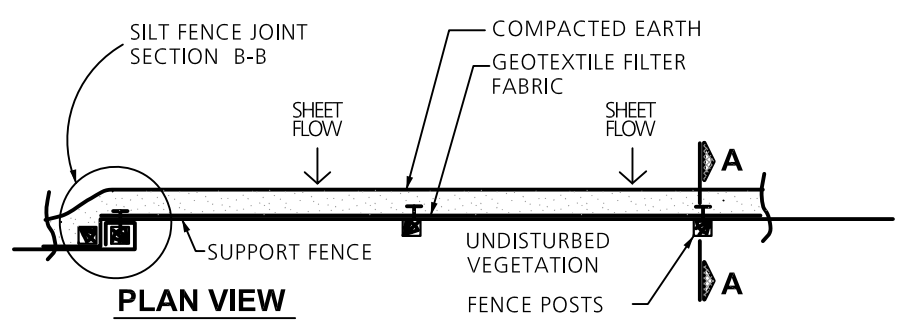
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STYLES
DATES



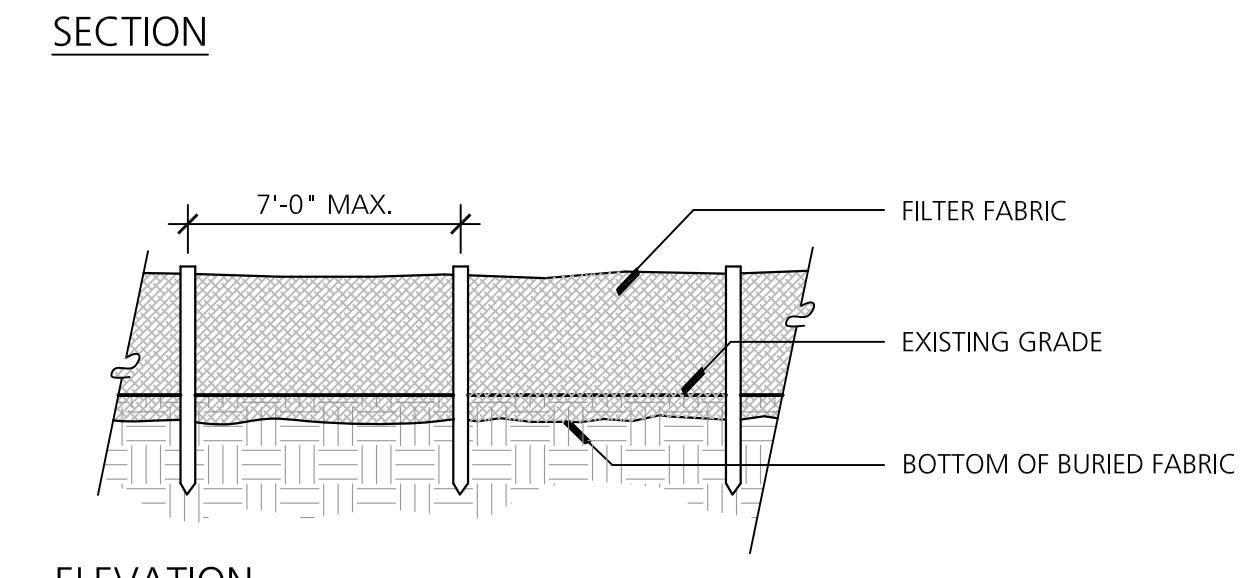
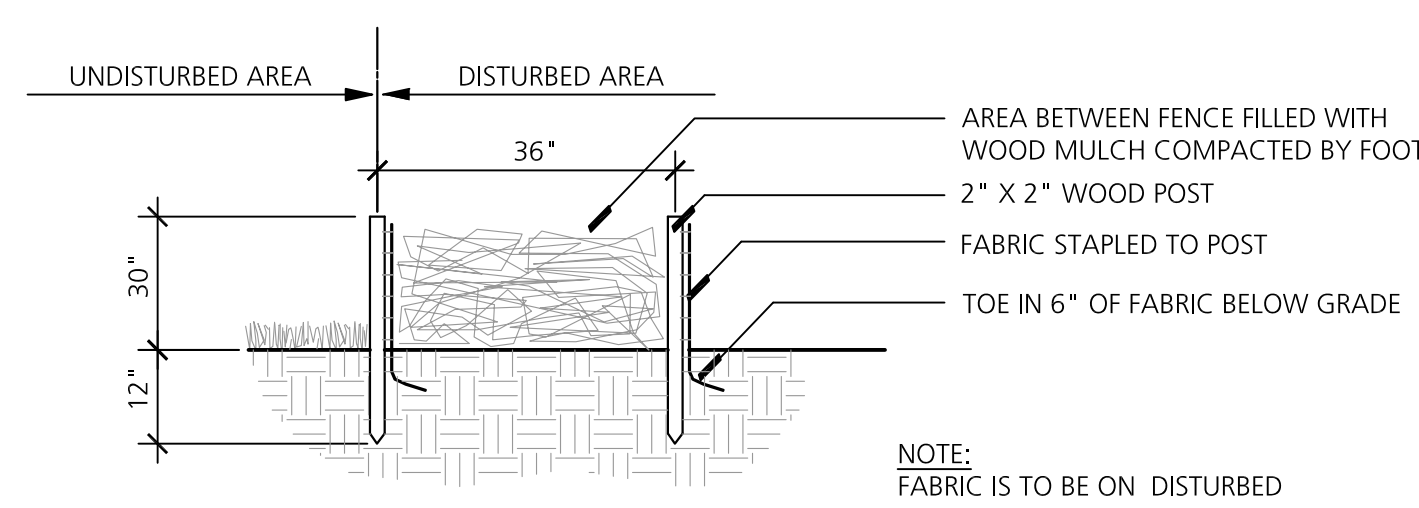
NOTES:
 CONTRACTOR TO INSTALL & MAINTAIN ANTI-TRACKING PAD.
 WHEN AGGREGATE BECOMES SATURATED WITH FINES, CONTRACTOR TO SCARIFY AND RELAY AGGREGATE.
 ANTI-TRACKING PAD DOES NOT RELIEVE CONTRACTOR FROM SWEEPING AND CLEANING ADJACENT WALKS AND ROADS.
 CRUSHED/ BROKEN CONCRETE IS TO BE REMOVED AND LEGALLY DISPOSED OF OFF-SITE.
 DIAGRAM IS FOR GENERAL DIMENSIONS AND REQUIREMENTS. SEE PLANS FOR REQUIRED SHAPE AND DIMENSIONS.

NOTE:
 A COMMERCIAL MANUFACTURED ANTI-TRACKING MAT MAY BE USED IN LIEU OF AN AGGREGATE PAD SUBJECT TO UM APPROVAL.

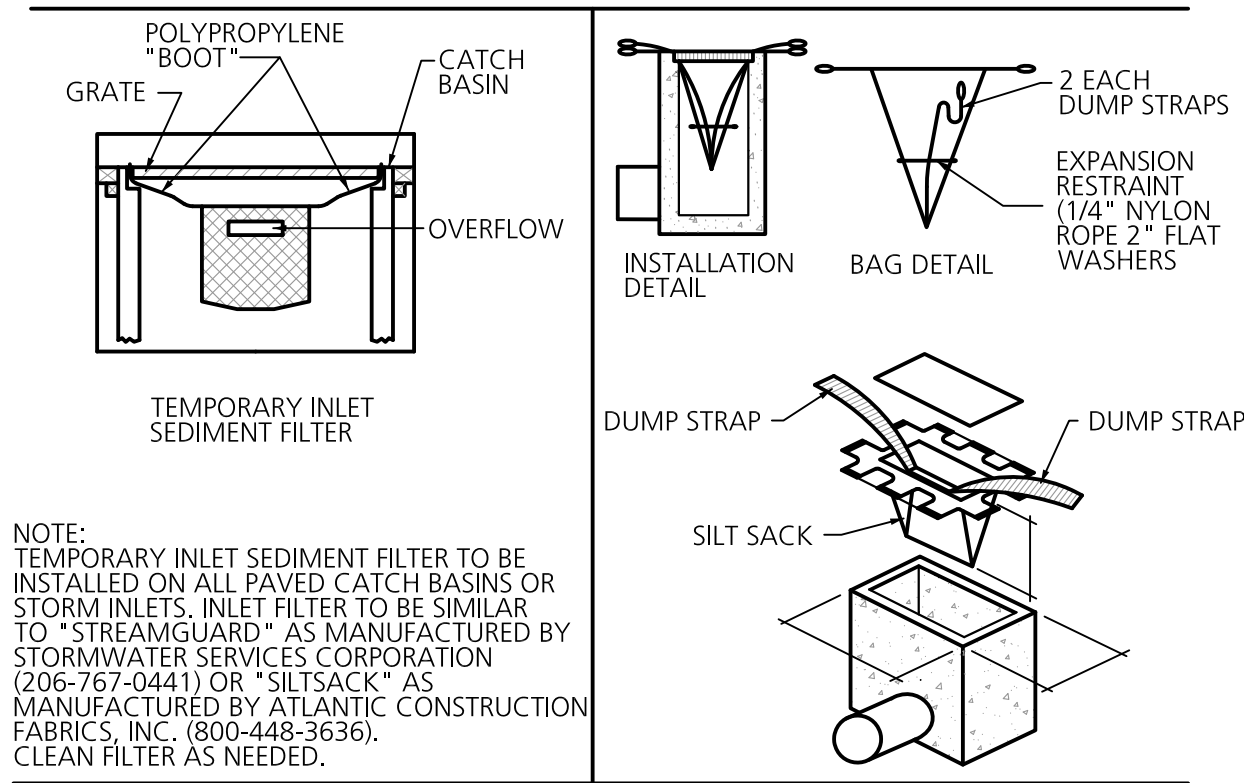
4 Anti-Tracking Pad
 NO SCALE



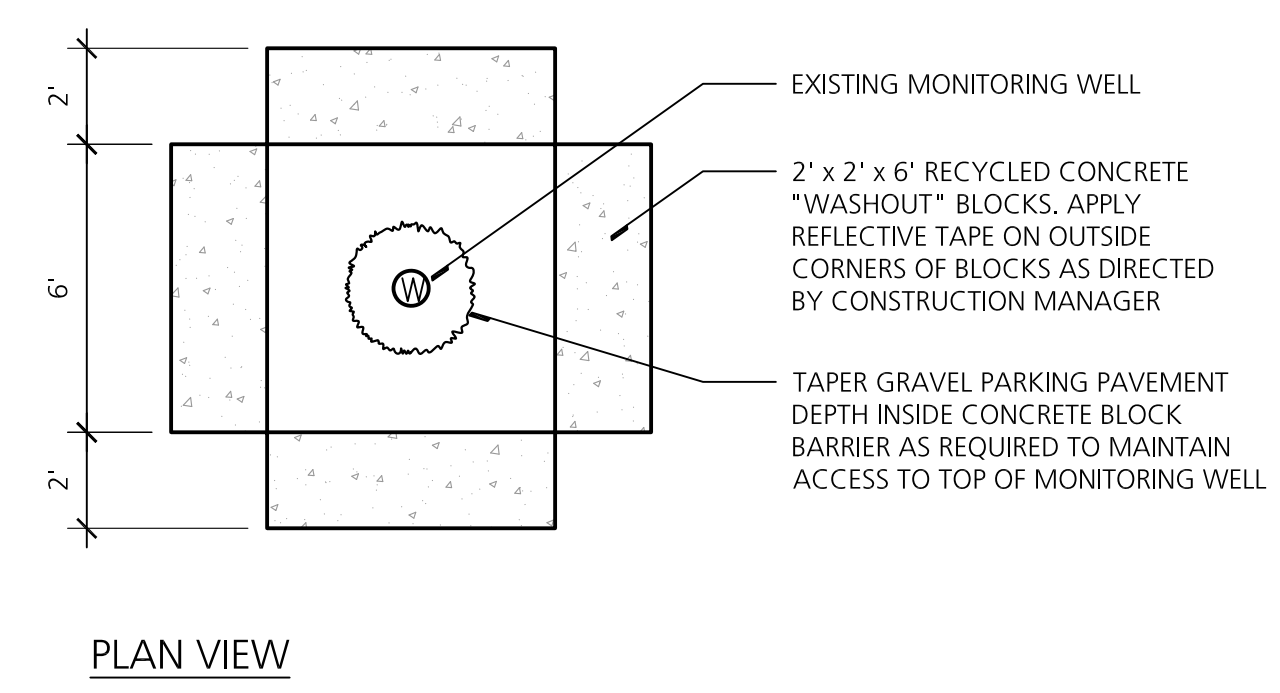
2 Silt Fence
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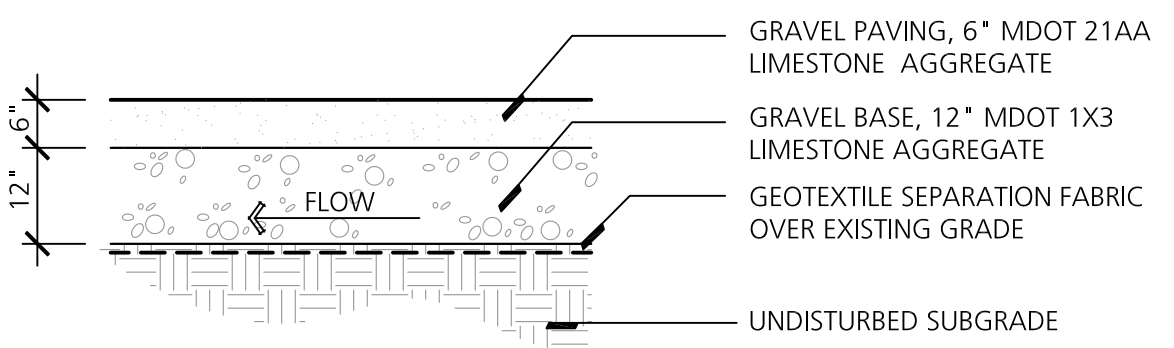
3 Sediment Retention Barrier
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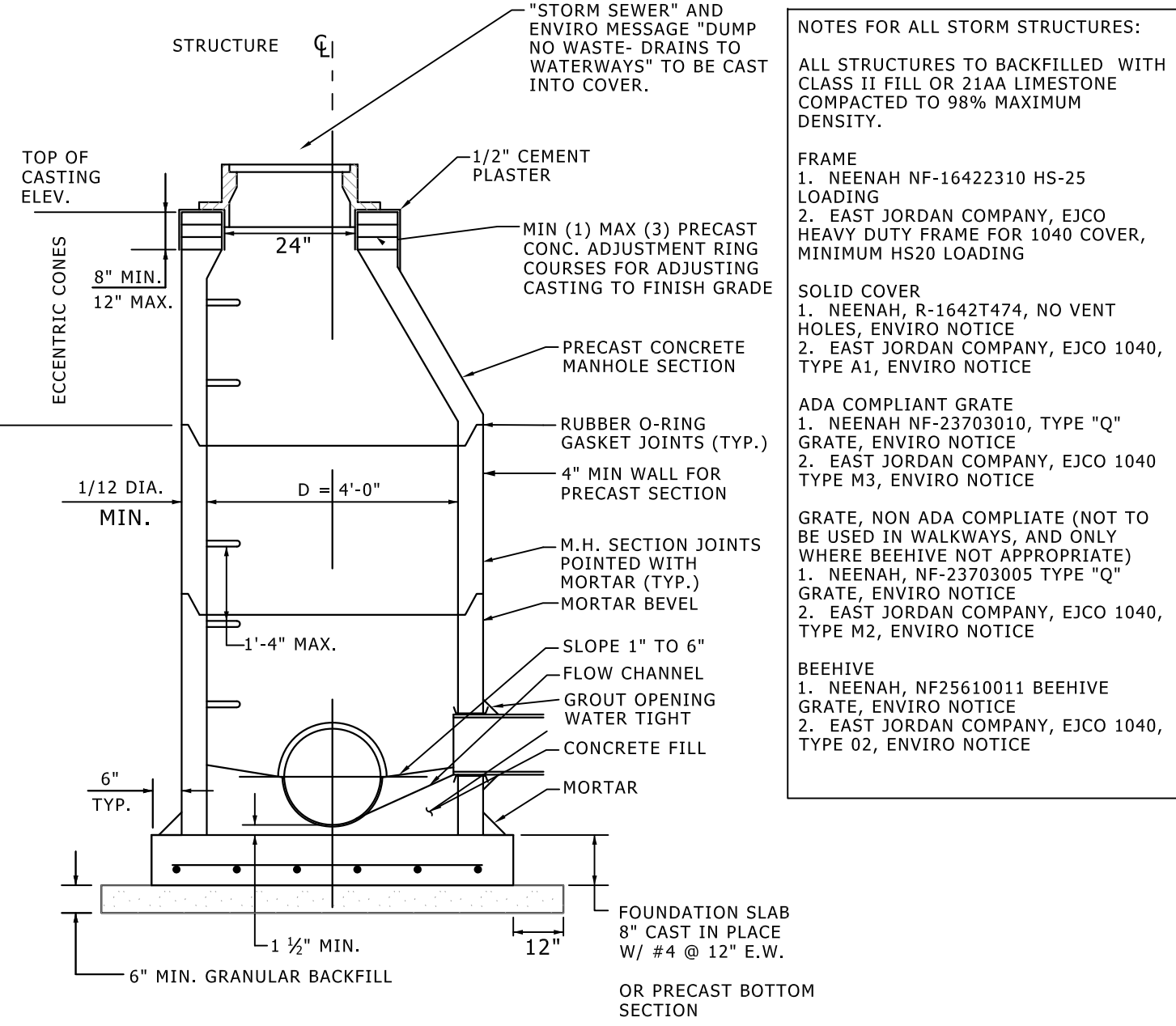
1 Inlet Filter
 NO SCALE



5 Monitoring Well Protection Detail
 NO SCALE



6 Gravel Paving
 NO SCALE



7 4' Diameter Precast Storm Manhole
 NO SCALE

NOTES FOR ALL STORM STRUCTURES:
 ALL STRUCTURES TO BACKFILLED WITH CLASS II FILL OR 21A LIMESTONE COMPACTED TO 98% MAXIMUM DENSITY.
FRAME
 1. NEENAH NF-16422310 HS-25 LOADING
 2. EAST JORDAN COMPANY, EJCO HEAVY DUTY FRAME FOR 1040 COVER, MINIMUM HS20 LOADING
SOLID COVER
 1. NEENAH, R-1642T474, NO VENT HOLES, ENVIRO NOTICE
 2. EAST JORDAN COMPANY, EJCO 1040, TYPE M3, ENVIRO NOTICE
ADA COMPLIANT GRATE
 1. NEENAH NF-23703010, TYPE "Q" GRATE, ENVIRO NOTICE
 2. EAST JORDAN COMPANY, EJCO 1040, TYPE M3, ENVIRO NOTICE
GRATE, NON ADA COMPLIANT (NOT TO BE USED IN WALKWAYS, AND ONLY WHERE BEEHIVE NOT APPROPRIATE)
 1. NEENAH, NF-23703005 TYPE "Q" GRATE, ENVIRO NOTICE
 2. EAST JORDAN COMPANY, EJCO 1040, TYPE M2, ENVIRO NOTICE
BEEHIVE
 1. NEENAH, NF25610011 BEEHIVE GRATE, ENVIRO NOTICE
 2. EAST JORDAN COMPANY, EJCO 1040, TYPE 02, ENVIRO NOTICE

SOIL EROSION AND SEDIMENTATION CONTROL SEQUENCE

IN ACCORDANCE WITH RULE 1709 PROMULGATED UNDER THE AUTHORITY OF PART 91, SOIL EROSION AND SEDIMENTATION CONTROL, OF THE NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT, 1994 PA 451, AS AMENDED, AND IN ADDITION TO THE INFORMATION IN THE PROJECT PLANS AND SPECIFICATIONS, THE FOLLOWING GENERAL CONDITIONS APPLY TO THE EARTH CHANGE AUTHORIZED BY THIS DOCUMENT:

- DESIGN, CONSTRUCT, AND COMPLETE THE EARTH CHANGE IN A MANNER THAT LIMITS THE EXPOSED AREA OF DISTURBED LAND FOR THE SHORTEST PERIOD OF TIME.
- REMOVE SEDIMENT CAUSED BY ACCELERATED SOIL EROSION FROM RUNOFF WATER BEFORE IT LEAVES THE SITE OF THE EARTH CHANGE.
- TEMPORARY OR PERMANENT CONTROL MEASURES SHALL BE DESIGNED AND INSTALLED TO CONVEY WATER AROUND, THROUGH OR FROM THE EARTH CHANGE AT A NON-EROSIVE VELOCITY.
- INSTALL TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES BEFORE OR UPON COMMENCEMENT OF THE EARTH CHANGE ACTIVITY AND MAINTAIN THE MEASURES ON A DAILY BASIS. REMOVE TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES AFTER PERMANENT SOIL EROSION MEASURES ARE IN PLACE AND THE AREA IS STABILIZED. ("STABILIZED" MEANS THE ESTABLISHMENT OF VEGETATION OR THE PROPER PLACEMENT, GRADING OR COVERING OF SOIL TO ENSURE ITS RESISTANCE TO SOIL EROSION, SLIDING, OR OTHER EARTH MOVEMENT.)
- COMPLETE PERMANENT SOIL EROSION CONTROL MEASURE FOR THE EARTH CHANGE WITHIN FIVE (5) CALENDAR DAYS AFTER FINAL GRADING OR UPON COMPLETION OF THE FINAL EARTH CHANGE. IF IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE THE EARTH CHANGE, THEN MAINTAIN TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IN PLACE AND THE AREA IS STABILIZED.
- THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING LANDSCAPING DURING THE WARRANTY PERIOD. AFTER THE WARRANTY HAS EXPIRED, THE PERMANENT SESC MEASURES WILL BE MAINTAINED BY U-M FACILITIES & OPERATIONS' GROUNDS SERVICES AND THE U-M FACILITIES & OPERATIONS UTILITIES SERVICES AS APPROPRIATE. THE GROUNDS MANAGER WILL BE RESPONSIBLE FOR MAINTENANCE OF ANY PERMANENT LANDSCAPING SESC MEASURES. THE WATER UTILITIES SYSTEMS MANAGER WILL BE RESPONSIBLE FOR THE MAINTENANCE OF ANY SESC MEASURES THAT ARE PART OF THE STORM WATER DRAINAGE SYSTEM PIPING.

SOIL EROSION AND SEDIMENTATION CONTROL MAINTENANCE NOTES

- INSTALL TEMPORARY INLET FILTERS AT ALL ADJACENT AND DOWN-GRADIENT STORM WATER INLETS, CATCH BASINS AND MANHOLES THAT MAY BE IMPACTED. CATCH BASIN INLET FILTERS SHALL BE MAINTAINED CLEAN AT ALL TIMES THROUGHOUT THE CONSTRUCTION PERIOD. IF A FILTER HAS HOLES OR IS INUNDATED WITH SEDIMENT, THE FILTER WILL REQUIRE REPLACEMENT.
- INSTALL AN ANTI-TRACKING PAD AT THE SITE ENTRY AND EXIT(S). THE ANTI-TRACKING PAD SHOULD BE CONSTRUCTED OF GEOTEXTILE FABRIC WITH LIMESTONE OVER IT.
- SILT FENCE SHALL BE MAINTAINED AT ALL TIMES THROUGHOUT THE CONSTRUCTION PERIOD. IF REPAIR OR REPLACEMENT IS NECESSARY, IT SHALL BE PERFORMED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS. MAINTENANCE INCLUDES THE REMOVING OF BUILT-UP SEDIMENT ACCUMULATES TO 1/2 THE HEIGHT OF THE FENCE. CONTRACTOR SHALL REMOVE, REPLACE, RETRENCH, OR RE-BACKFILL THE FENCE IF IT FAILS. ADDITIONALLY, THE CONTRACTOR SHALL REINSTALL ANY PORTION OF THE FENCING DAMAGED BY CONSTRUCTION MACHINERY.
- PLACE STOCKPILES AND OTHER SPOIL PILES AWAY FROM THE DRAINAGE SYSTEM TO MINIMIZE SEDIMENT TRANSPORT. IF THE STOCKPILE AND/OR SPOIL PILE MUST REMAIN ON-SITE OVERNIGHT, OR IF THE WEATHER CONDITIONS INDICATE THE CHANCE FOR PRECIPITATION, A) COVER THE PILE WITH WATER REPELLENT MATERIAL TO PREVENT EROSION AND/OR B) INSTALL SILT FENCING AROUND THE BASE OF THE PILE TO PREVENT TRANSPORT OF SEDIMENT TO THE STORM WATER SYSTEM, OR APPLY OTHER CONTROL METHODS APPROPRIATE TO THE SIDE. CONTROL MEASURES TO GUARD AGAINST WIND EROSION MUST ALSO BE EMPLOYED, SUCH AS WETTING OR COVERING THE STOCKPILES. KEEP AS FEW STOCKPILES AS POSSIBLE DURING THE COURSE OF THE PROJECT.
- THROUGHOUT THE CONSTRUCTION PERIOD, ALL MUD/SILT TRACKED ONTO EXISTING ROADS FROM THE SITE DUE TO CONSTRUCTION SHALL BE IMMEDIATELY REMOVED BY THE CONTRACTOR.
- SEEDING OR OTHER STABILIZATION SHALL BE REQUIRED IMMEDIATELY TO AREAS WHICH HAVE BEEN DAMAGED BY RUNOFF.
- THE CONTRACTOR SHALL MAINTAIN DUST CONTROL ON THE SITE THROUGHOUT THE DURATION OF THE CONSTRUCTION PROCESS.
- WEEKLY INSPECTIONS BY A UNIVERSITY SESC TRAINED CERTIFIED STORM WATER MANAGEMENT OPERATOR AS WELL AS PERIODIC INSPECTIONS WITHIN 24 HOURS OF A SIGNIFICANT RAIN EVENT WILL BE REQUIRED. THESE INSPECTIONS MAY RESULT IN RECOMMENDATIONS FOR ROUTINE MAINTENANCE OF THE SOIL EROSION CONTROL DEVICES, AS WELL AS ADDITIONAL CONTROLS.

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M. Pinegar-Koster
 U of M DESIGN SUPERVISOR

APPROVED BY
Beckett & Raeder, Inc.

REPRESENTING
A. Toomey **B. Barrick**
 DRAWN BY **B. Barrick** DESIGN MANAGER
 DESIGNED BY **B. Barrick** REVIEWED BY

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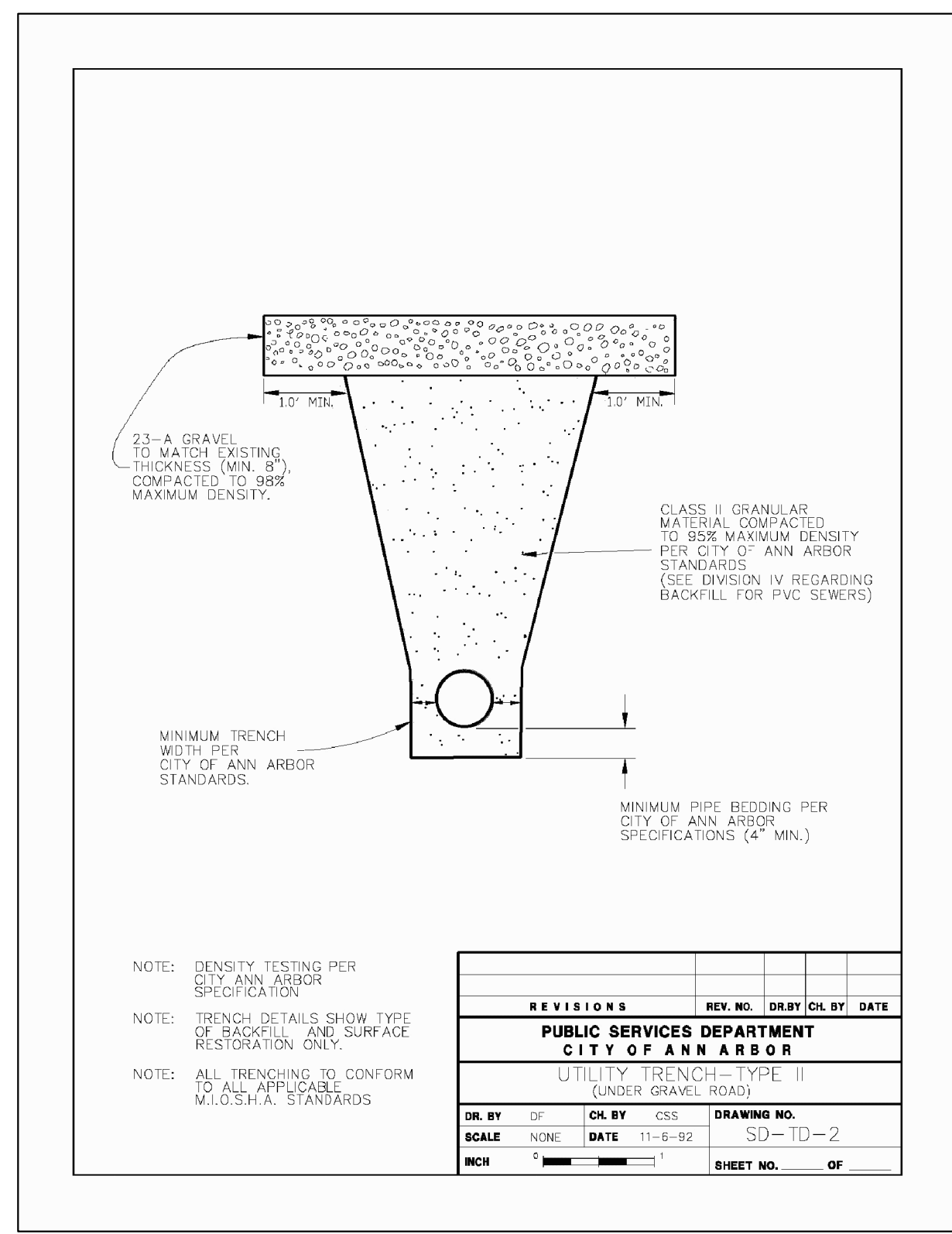
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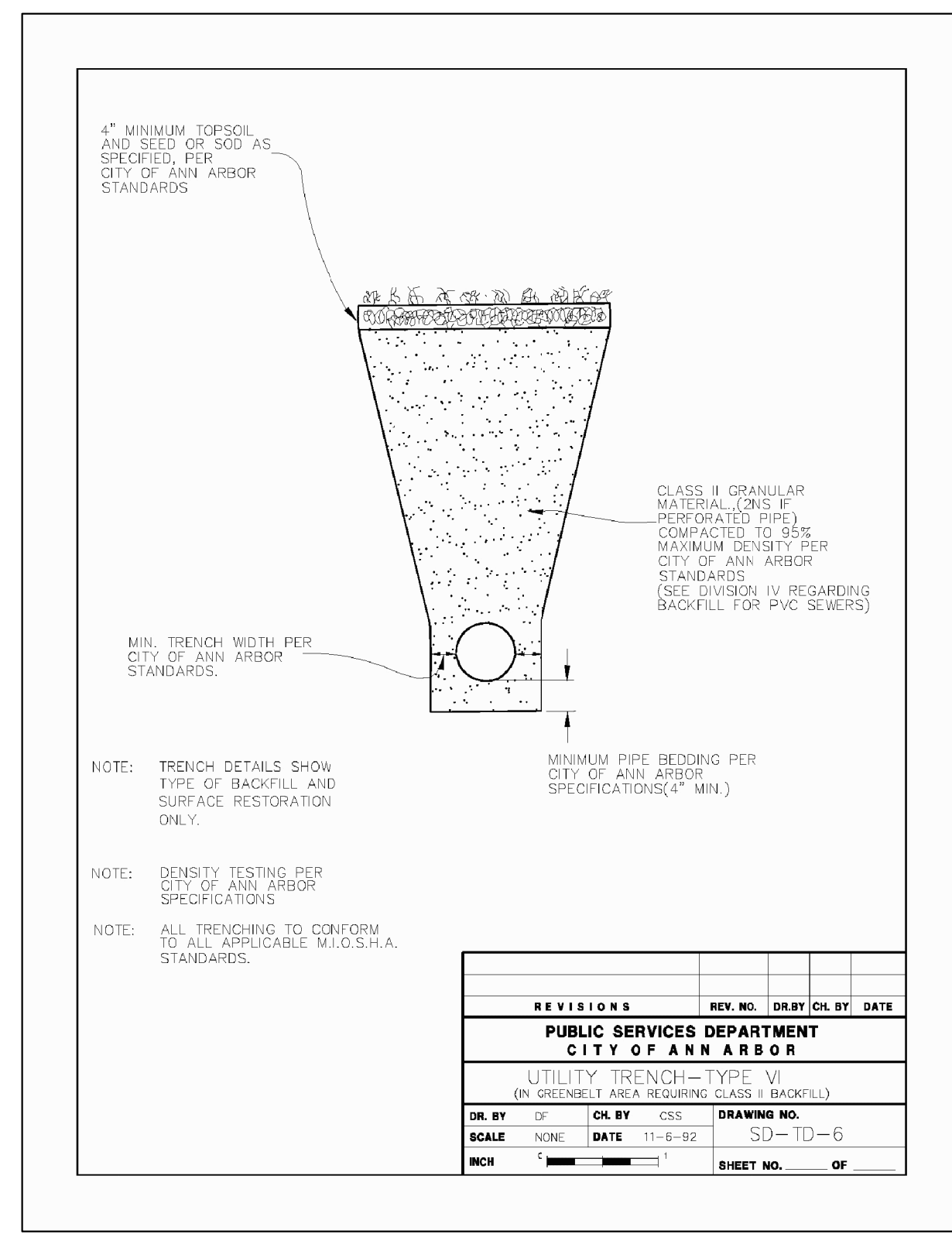
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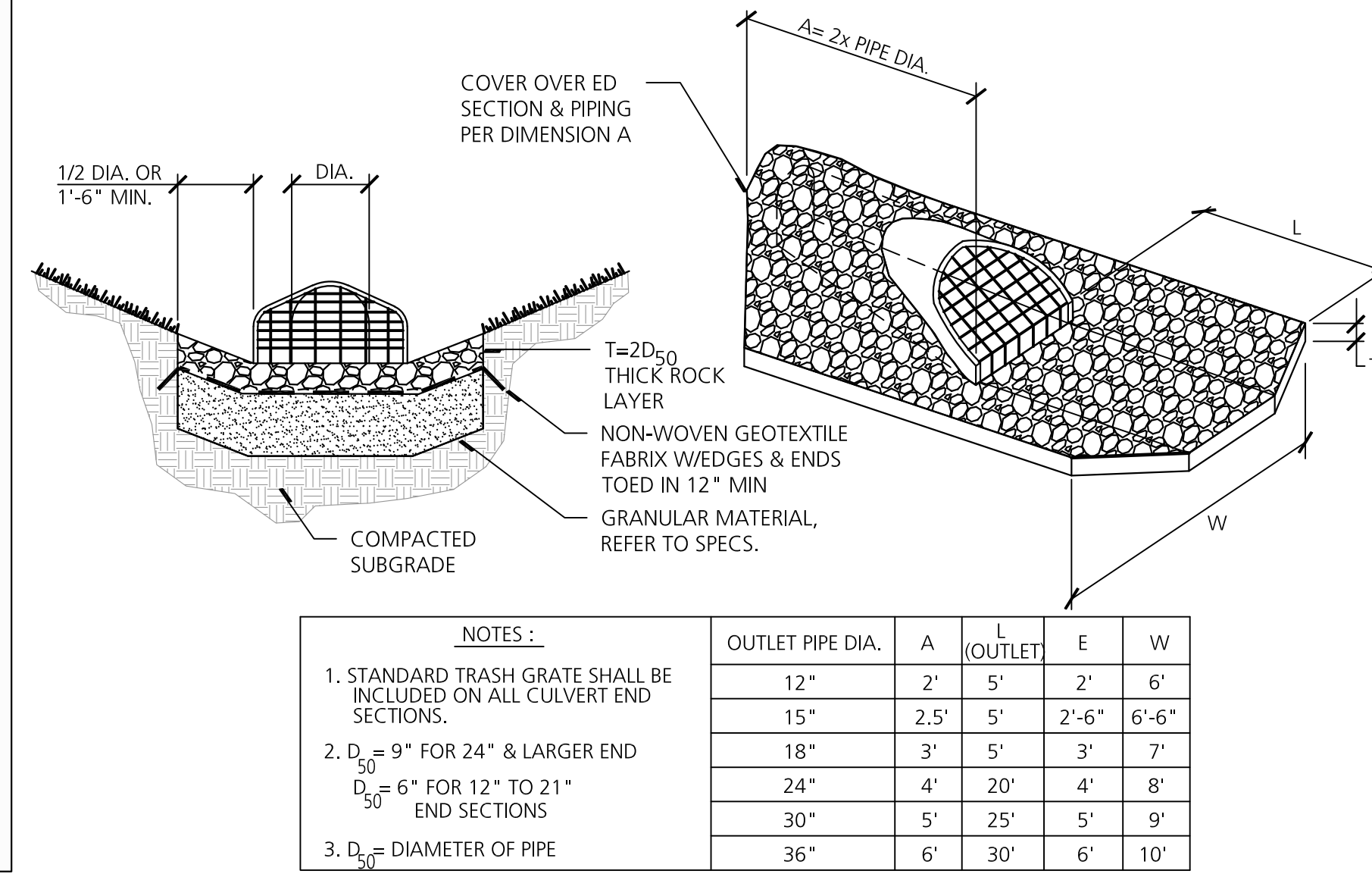
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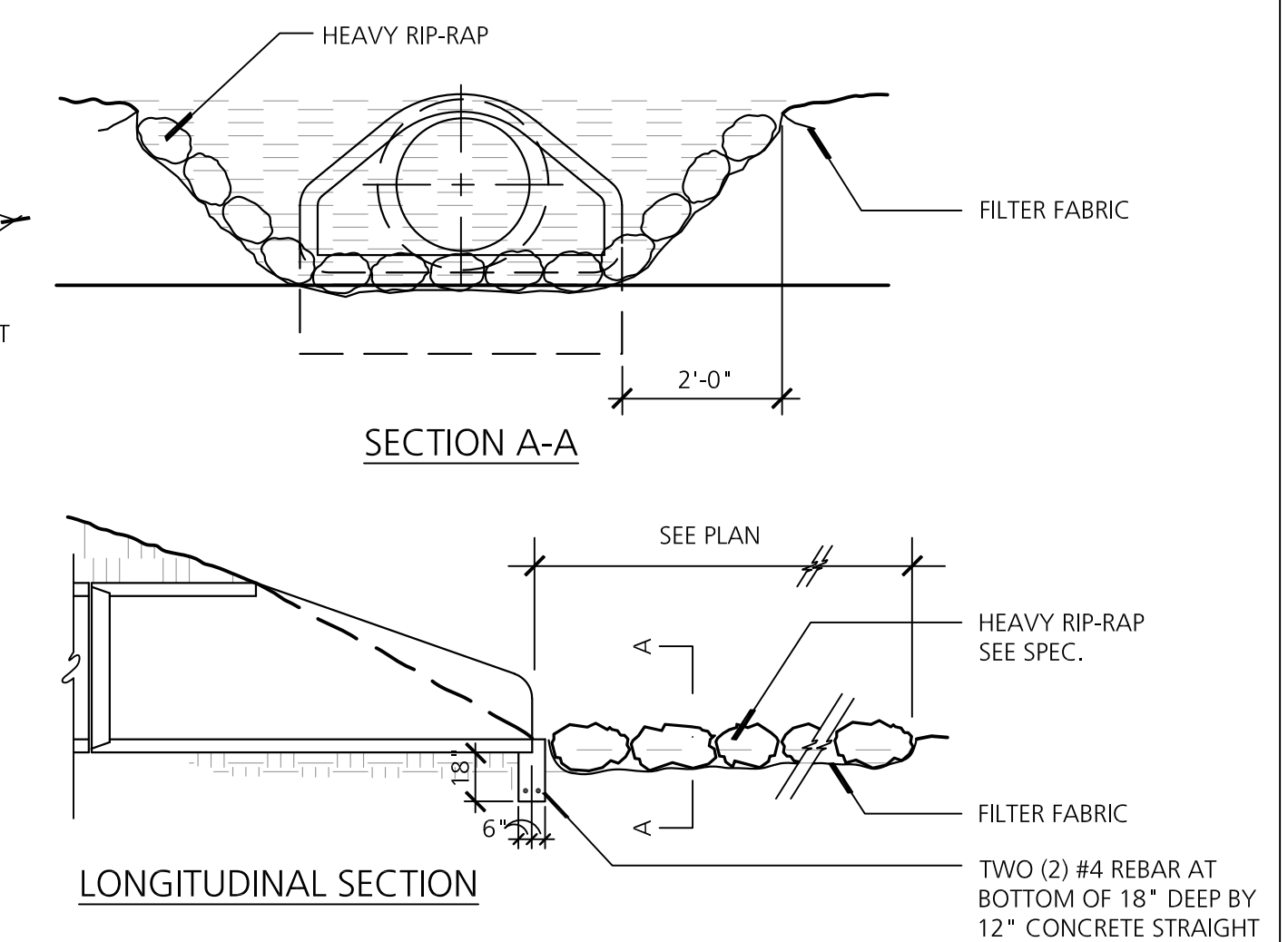
1 Utility Trench - Type 2
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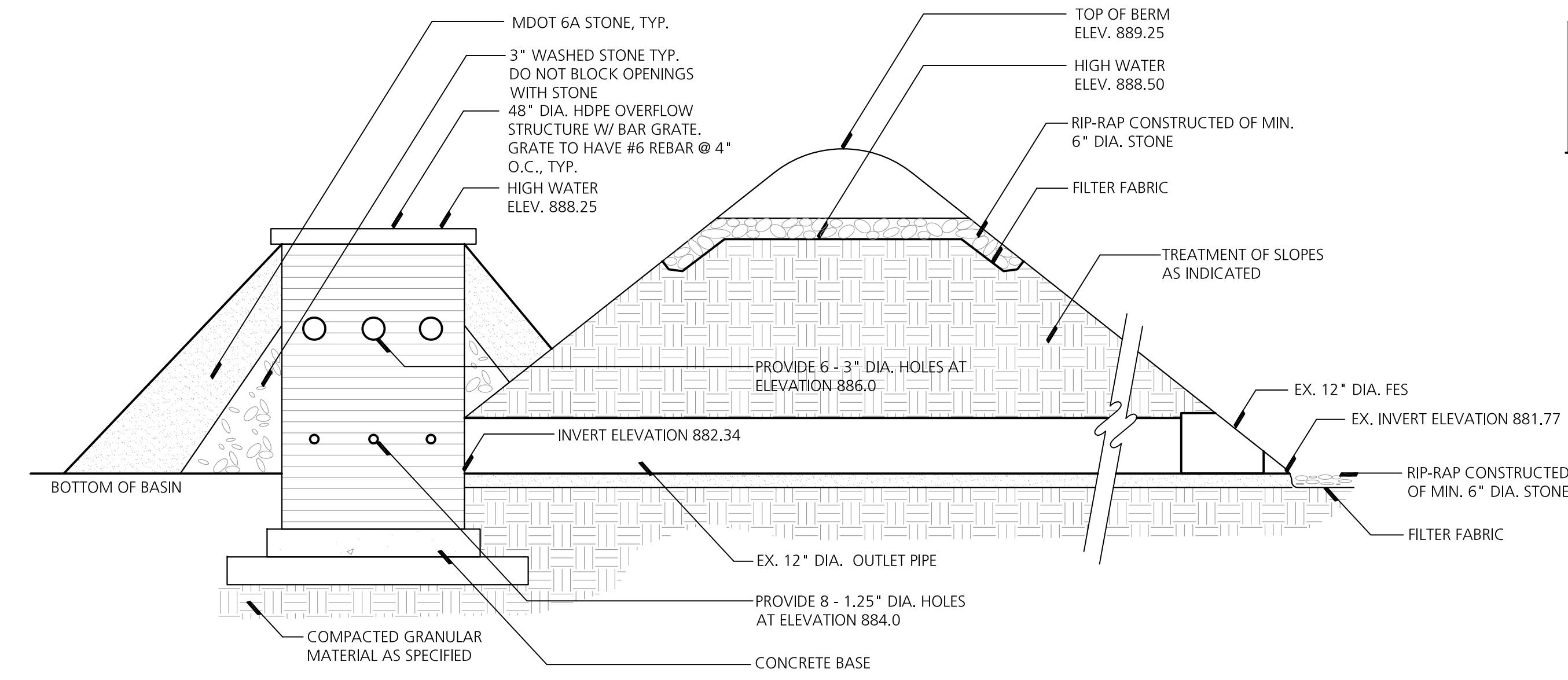
2 Utility Trench - Type 6
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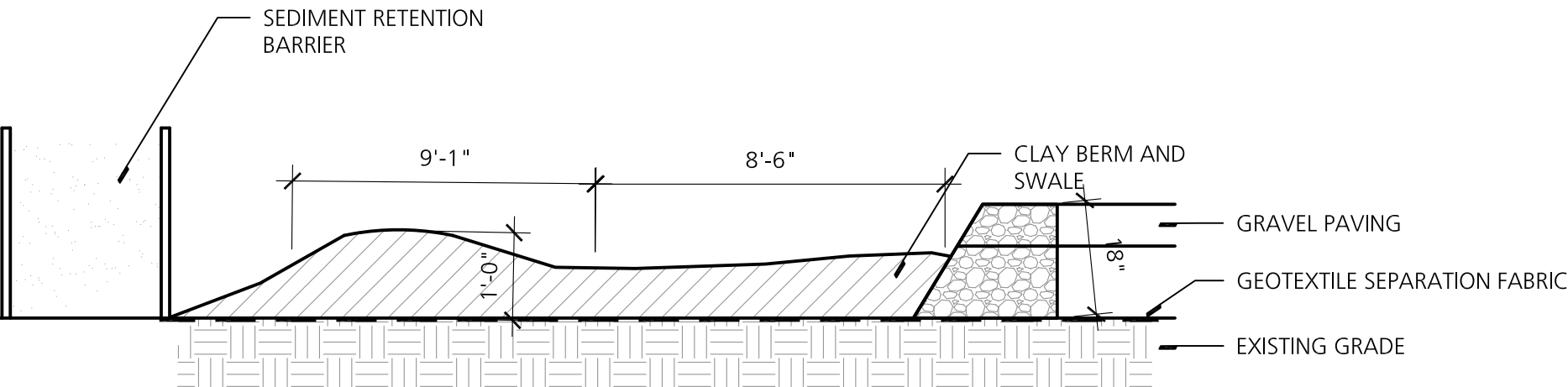
3 Flared End Section w/ Grate
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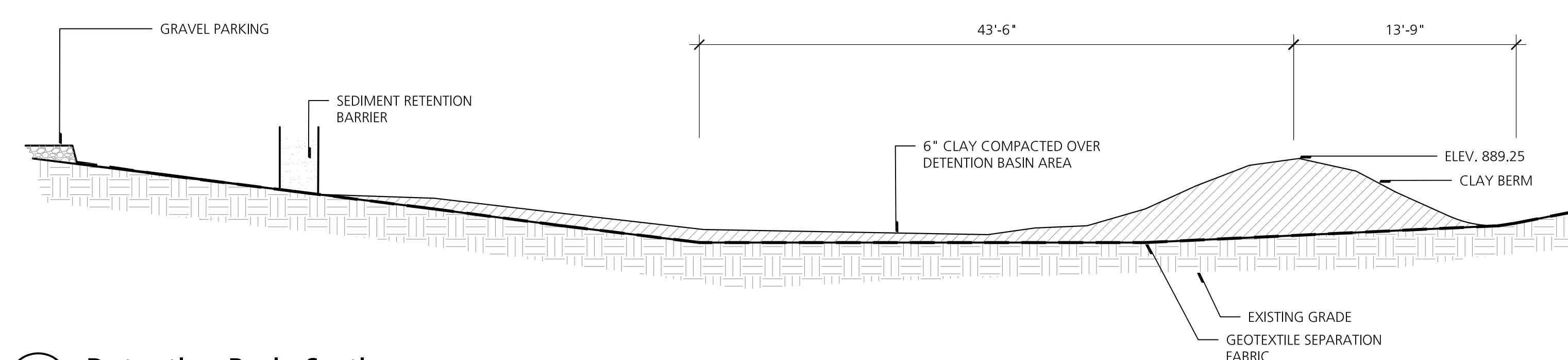
4 End Section Rip-Rap
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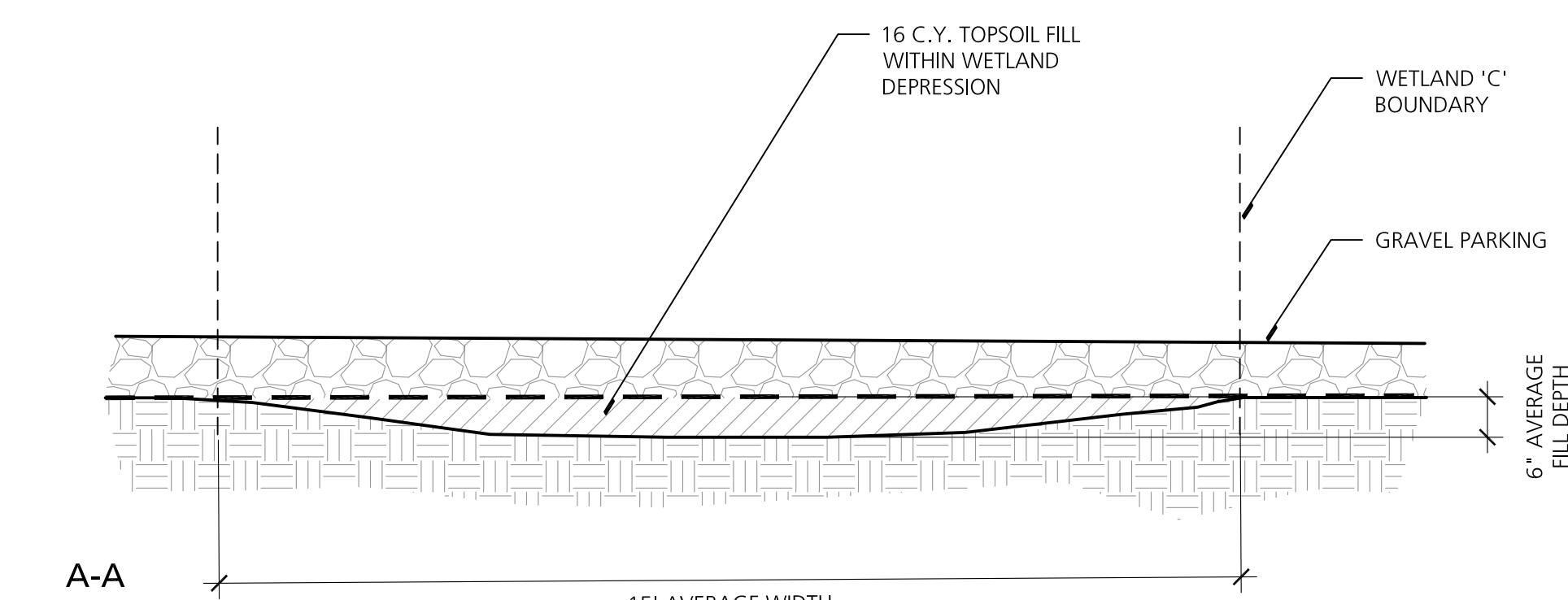
5 Detention Basin Outlet Control Structure
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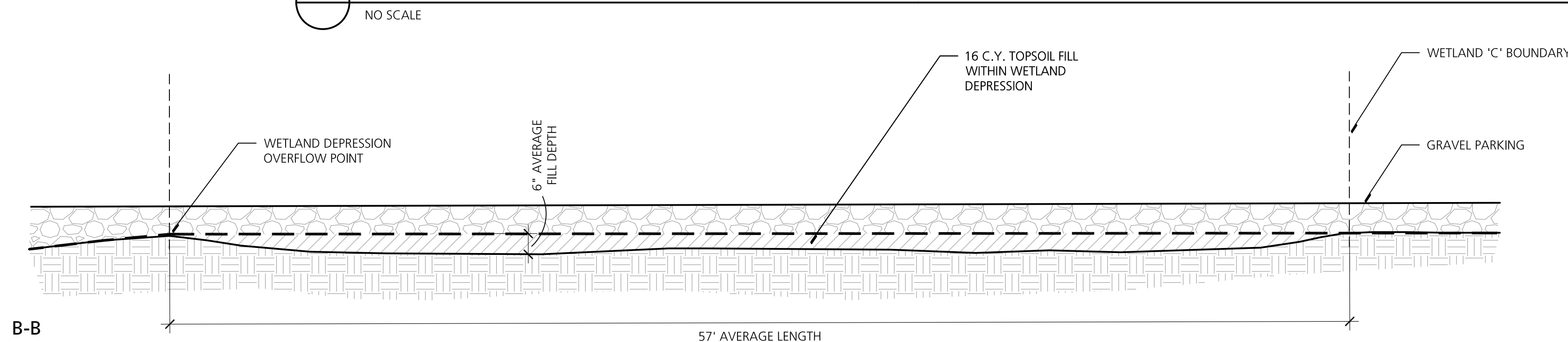
6 Clay Berm Section
NO SCALE



7 Detention Basin Section
NO SCALE



8 Wetland Sections - Wetland C
NO SCALE



NO SCALE

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