

CITY OF MERCER ISLAND

KING COUNTY

WASHINGTON



2023

STREET RELATED

STORM DRAINAGE IMPROVEMENTS

PROJECT NO. 23-18

MAY 2023

BID DOCUMENT

SHEET INDEX

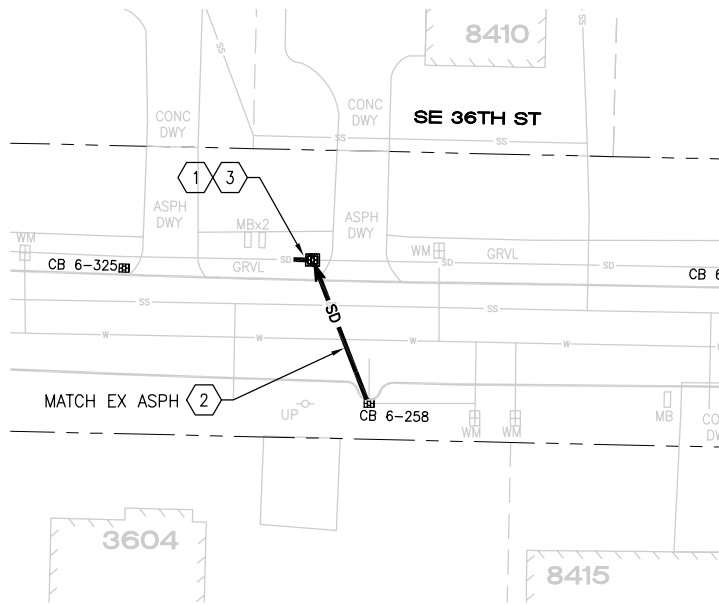
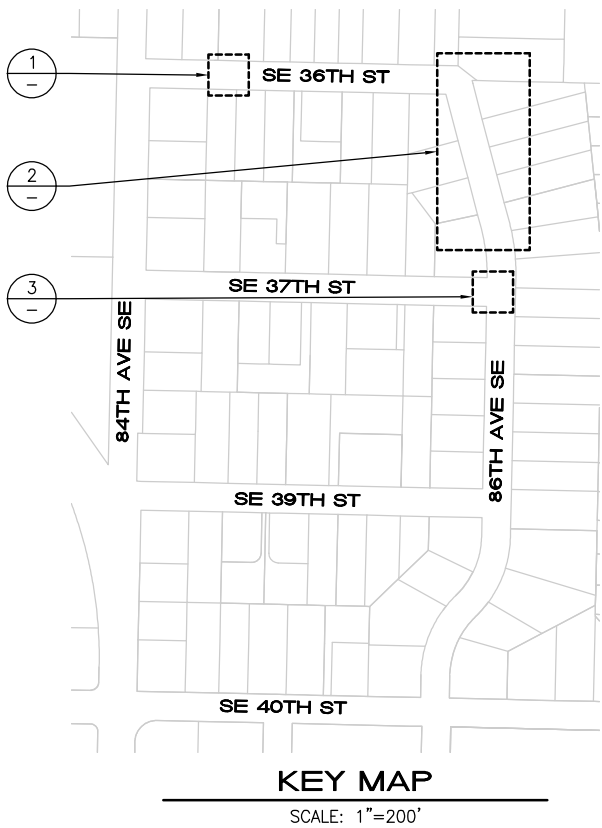
- |     |                                   |
|-----|-----------------------------------|
| 1   | COVER AND GENERAL NOTES           |
| 2-5 | RESIDENTIAL DRAINAGE IMPROVEMENTS |
| 6-7 | DETAILS                           |

GENERAL NOTES

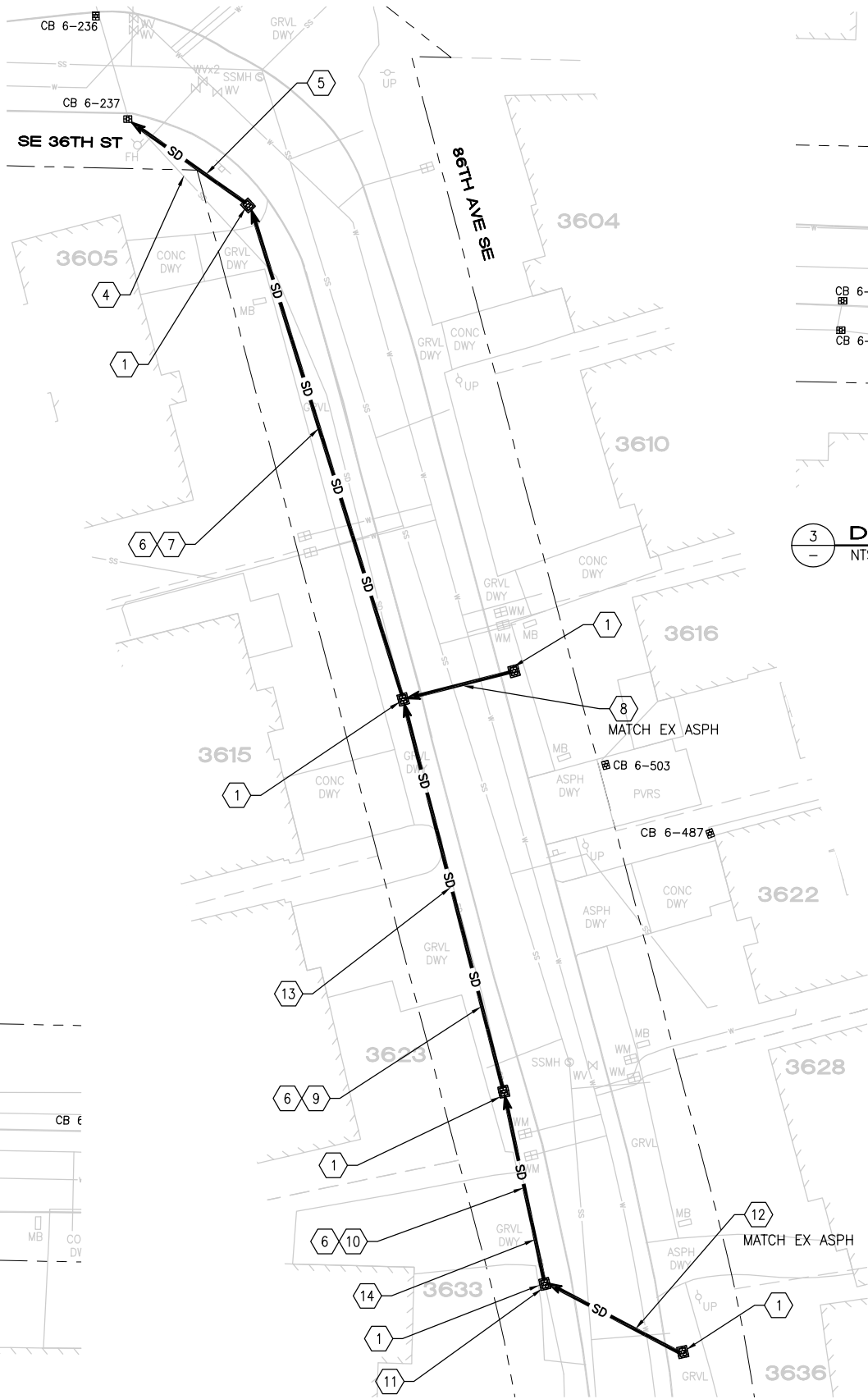
- TRAFFIC CONTROL SIGNS SHALL CONFORM TO M.U.T.C.D.
- UTILITIES THAT ARE NOT ABANDONED SHALL BE SUPPORTED AND MAINTAINED DURING CONSTRUCTION.
- EXISTING UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL VERIFY ALL UNDERGROUND UTILITY ELEVATIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO CONSTRUCTION.
- DRIVEWAY ACCESS/EGRESS MUST BE MAINTAINED AT ALL TIMES UNLESS OTHERWISE AGREED TO BY THE PROPERTY OWNER.
- CALL ONE CALL 48 HOURS BEFORE YOU DIG FOR UTILITY LOCATES: 1-800-424-5555 OR 811
- REMOVAL LIMITS ARE APPROXIMATE. LIMITS SHALL BE STAKED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. TREES WITHIN THE CLEARING LIMITS SHALL BE REMOVED AFTER APPROVAL BY THE ENGINEER.
- PROTECT ALL PLANT MATERIAL OUTSIDE OF SURFACE REMOVAL LIMITS.
- CONCRETE INLET MAY BE SUBSTITUTED FOR A CATCH BASIN TYPE 1 TO AVOID CONFLICTS.

GENERAL TESC NOTES

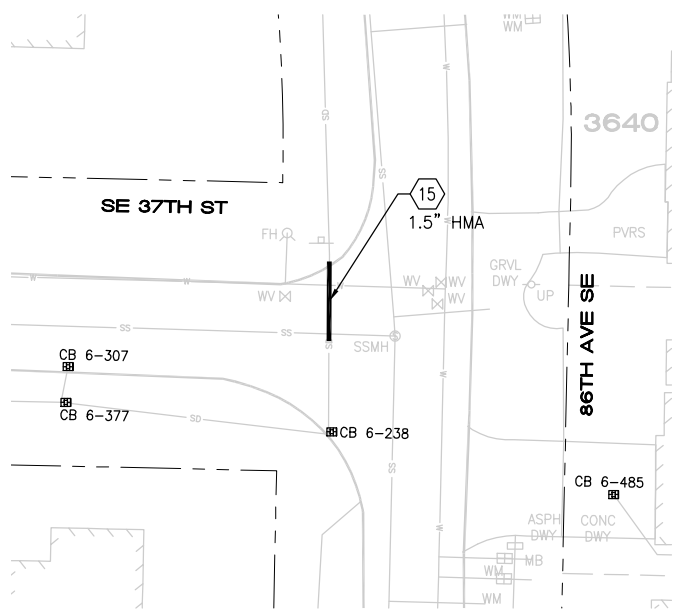
- THE TESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED PRIOR TO OR IN CONJUNCTION WITH ALL CLEARING AND GRADING SO AS TO ENSURE THAT THE TRANSPORT OF SEDIMENT TO SURFACE WATERS, DRAINAGE SYSTEMS, AND ADJACENT PROPERTIES IS MINIMIZED.
- THE TESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE TESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND MODIFIED TO ACCOUNT FOR CHANGING SITE CONDITIONS (E.G. ADDITIONAL COVER MEASURES, ADDITIONAL SUMP PUMPS, RELOCATION OF DITCHES AND SILT FENCES, PERIMETER PROTECTION ETC.).
- CONTRACTOR SHALL INSTALL INLET PROTECTION PER DTL 3/6 AT ALL EXISTING AND NEW CATCH BASINS WITHIN THE PROJECT LIMITS AS WELL AS DOWNSTREAM OF THE WORK AREA, AS DIRECTED BY THE ENGINEER.



1  
-  
DETAIL  
NTS



2  
-  
DETAIL  
NTS



3  
-  
DETAIL  
NTS

## GENERAL NOTES

1. TYPICAL TRENCH SECTION PER MI STD DTL W-3/7.
2. RESIDENTIAL HMA PAVING DEPTH SHALL MATCH EX ASPH DEPTH EXCEPT WHERE NOTED AS 1.5" OR AS DIRECTED BY ENGINEER. AREAS WITH 1.5" HMA ARE PLANNED FOR FULL DEPTH REMOVAL IN A SEPARATE OVERLAY PROJECT.
3. ADJUST NEW AND EX UTILITIES TO GRADE PER DTL 2/7.

## CONSTRUCTION NOTES

1. INSTALL NEW TYPE 1 CB AS FIELD LOCATED PER MI STD DTL D-8/6 AND D-20/6. ADJUST TO GRADE PER DTL 2/7.
2. INSTALL APPROX 30 LF OF 8" DI PIPE AT 2% MIN SLOPE AND 1' MIN COVER FROM EX CB 6-258
3. REMOVE APPROX 6 LF OF 8" DI PIPE. RECONNECT TO CB W/ 3 LF 8" DI PIPE NIPPLE AND FERNCO.
4. REMOVE 56 LF OF 12" CONC PIPE UPSTREAM OF EX CB 6-237
5. INSTALL APPROX 36 LF OF 12" DI PIPE. CONNECT TO EX CB 6-237.
6. MOUND BACKFILL OVER PIPE TO MAINTAIN 12" MIN COVER
7. INSTALL APPROX 131 LF OF 12" DI PIPE AT 2% MIN SLOPE AND 1' MIN COVER
8. INSTALL APPROX 29 LF OF 8" DI PIPE WITH 2% MIN SLOPE AND 1' MIN COVER.
9. INSTALL APPROX 103 LF OF 8" DI PIPE AT 2% MIN SLOPE AND 1' MIN COVER
10. INSTALL APPROX 50 LF OF 8" DI PIPE AT 2% MIN SLOPE AND 1' MIN COVER
11. RECONNECT EX 12" CONC FROM SOUTH INTO NEW TYPE 1 CB
12. INSTALL APPROX 39 LF OF 8" DI PIPE WITH 2% MIN SLOPE AND 1' MIN COVER.
13. REMOVE APPROX 81 LF OF 12" CONC PIPE
14. REMOVE APPROX 61 LF OF 12" CONC PIPE
15. REPLACE APPROX 18 LF OF 12" CONC PIPE W/ 12" DI PIPE APPROX 18' DOWNSTREAM OF EX CB 6-238. CONNECT TO CONC PIPE W/ FERNCO



20 0 20  
SCALE: 1" = 20'



REV. NO.	DATE	DESCRIPTION

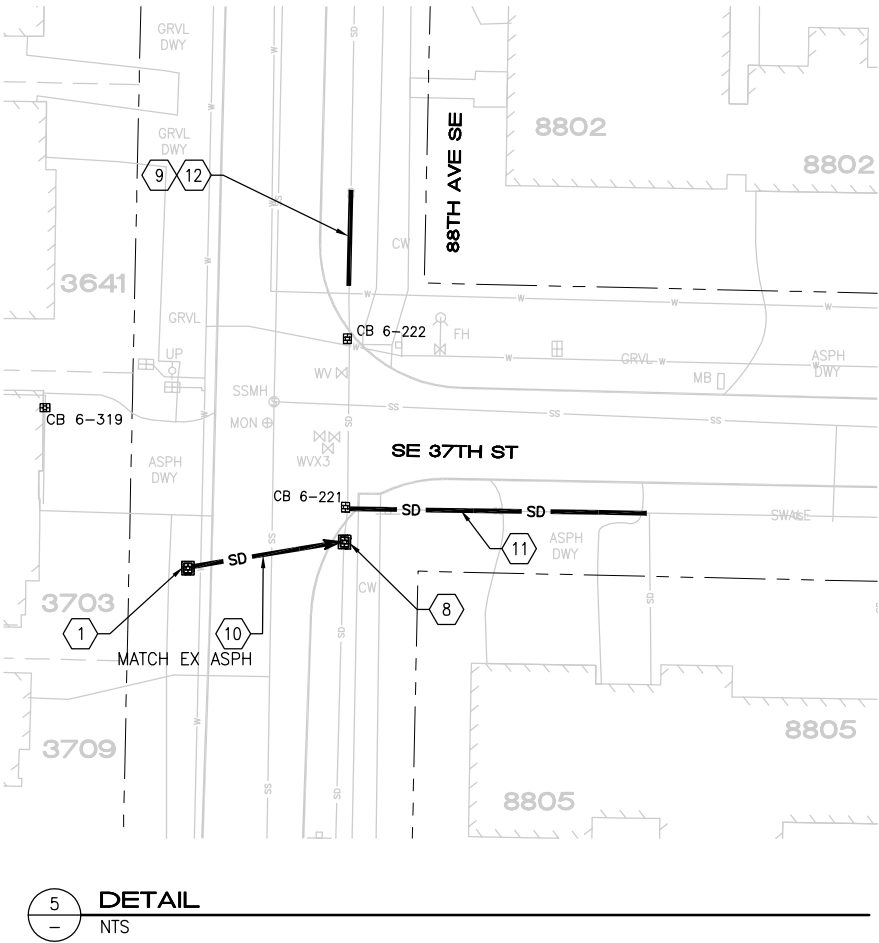
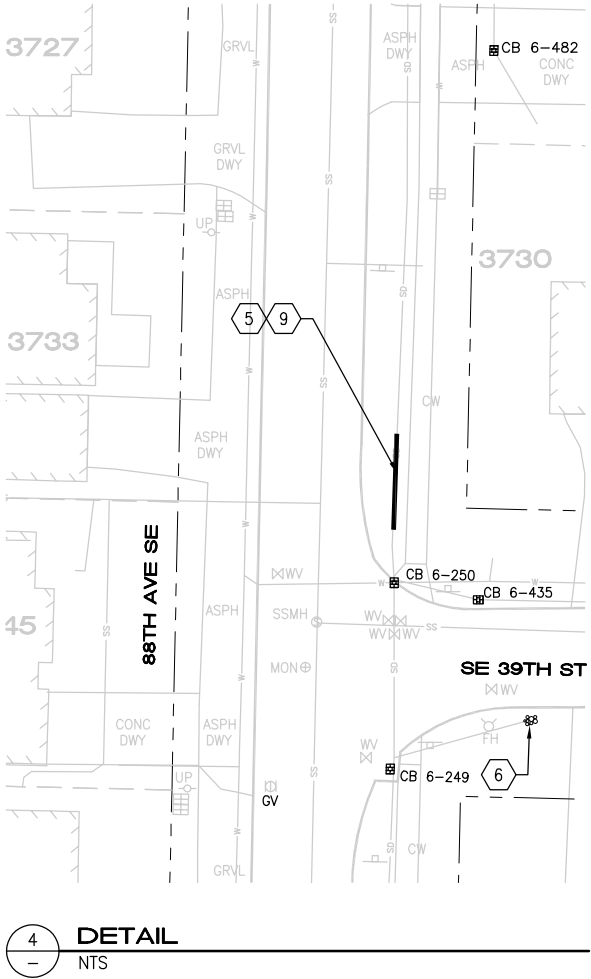
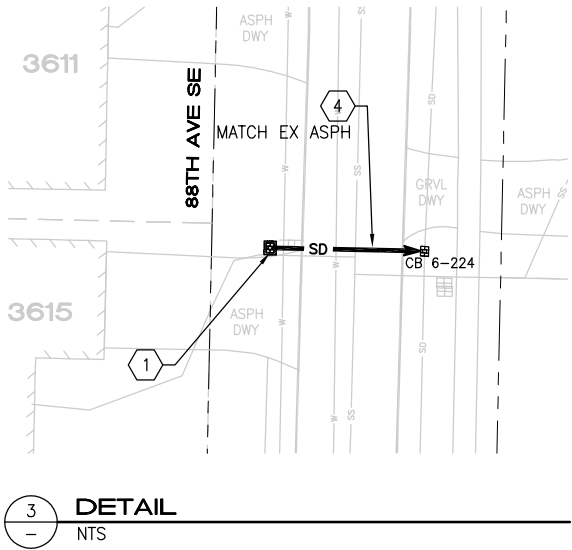
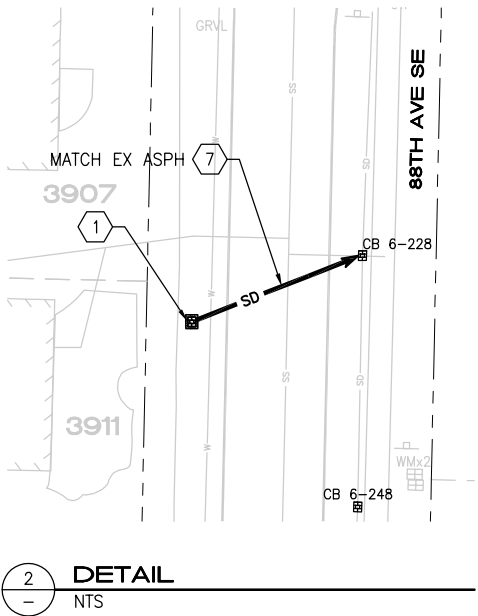
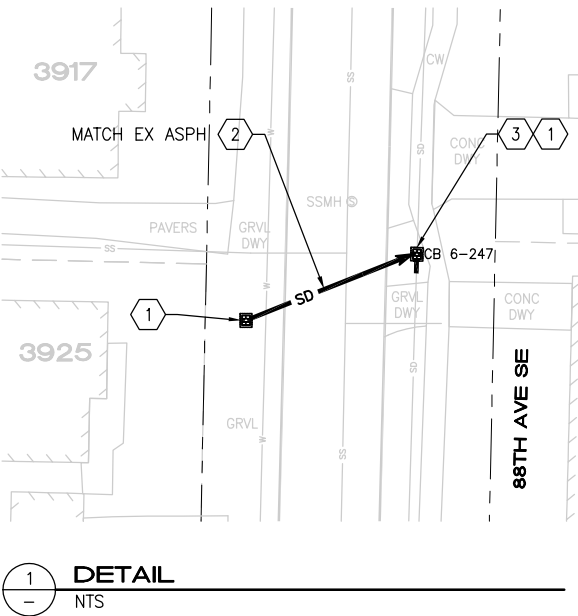
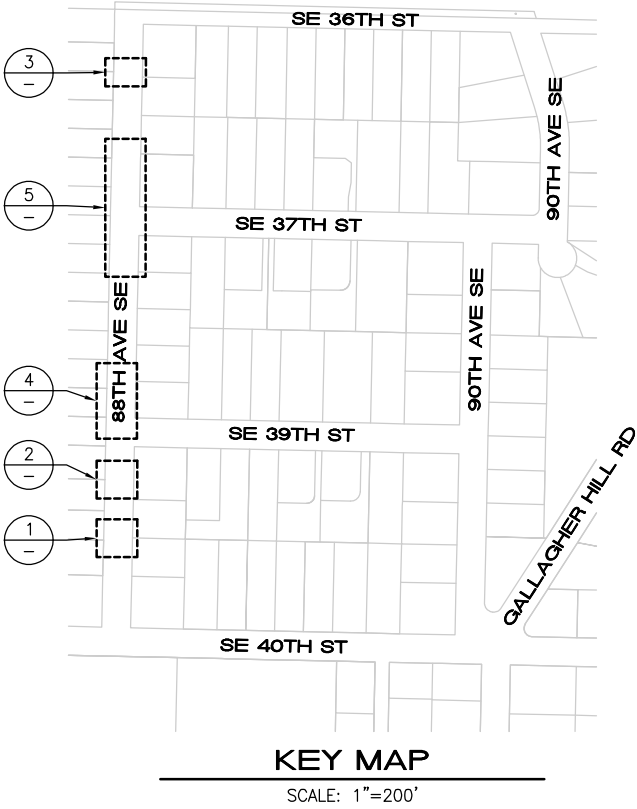
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DATE	5/5/23
DESIGN	EAS
DRAFT	EAS
CHECK	CEM

**CITY OF MERCER ISLAND**  
**2023 STREET RELATED STORM**  
**DRAINAGE IMPROVEMENTS**  
RESIDENTIAL DRAINAGE IMPROVEMENTS  
MADRONA CREST WEST

PROJECT	23-18
SCALE	1"=20'
SHEET	2 OF 7

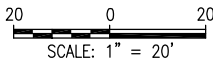


**GENERAL NOTES**

1. TYPICAL TRENCH SECTION PER MI STD DTL W-3/7.
2. RESIDENTIAL HMA PAVING DEPTH SHALL MATCH EX ASPH DEPTH EXCEPT WHERE NOTED AS 1.5" OR AS DIRECTED BY ENGINEER. AREAS WITH 1.5" HMA ARE PLANNED FOR FULL DEPTH REMOVAL IN A SEPARATE OVERLAY PROJECT.
3. ADJUST NEW AND EX UTILITIES TO GRADE PER DTL 2/7.

**CONSTRUCTION NOTES**

1. INSTALL NEW TYPE 1 CB AS FIELD LOCATED PER MI STD DTL D-8/6 AND D-20/6. ADJUST TO GRADE PER DTL 2/7.
2. INSTALL APPROX 38 LF OF 8" DI PIPE AT 2% MIN SLOPE AND 1' MIN COVER.
3. REMOVE EX CB 6-247. CONNECT CB TO CONC PIPE W/ 3 LF 12" DI PIPE NIPPLE AND FERNCO.
4. INSTALL APPROX 31 LF OF 8" DI PIPE AT 2% MIN SLOPE AND 1' MIN COVER. CONNECT TO EX CB 6-228.
5. INSTALL APPROX 20 LF OF 12" DI PIPE. CONNECT TO EX DI PIPE.
6. CLEAN PIPE INLET/OUTLET. INSTALL QUARRY SPALL PAD PER DTL 4/7.
7. INSTALL APPROX 38 LF OF 8" DI PIPE AT 2% MIN SLOPE AND 1' MIN COVER. CONNECT TO EX CB 6-228.
8. INSTALL NEW TYPE 1 CB ON EX CONC PIPE TO THE NORTH. ADJUST TO GRADE PER DTL 2/7.
9. MOUND BACKFILL OVER PIPE TO MAINTAIN 12" MIN COVER
10. INSTALL APPROX 33 LF OF 8" DI PIPE AT 2% MIN SLOPE AND 1' MIN COVER.
11. REPLACE 61 LF OF 12" CMP UPSTREAM OF EX CB 6-221 W/ 12" DI PIPE
12. INSTALL APPROX 20 LF OF 12" DI PIPE AT 2% MIN SLOPE AND 1' MIN COVER. CONNECT TO EX CONC PIPE W/ FERNCOS.



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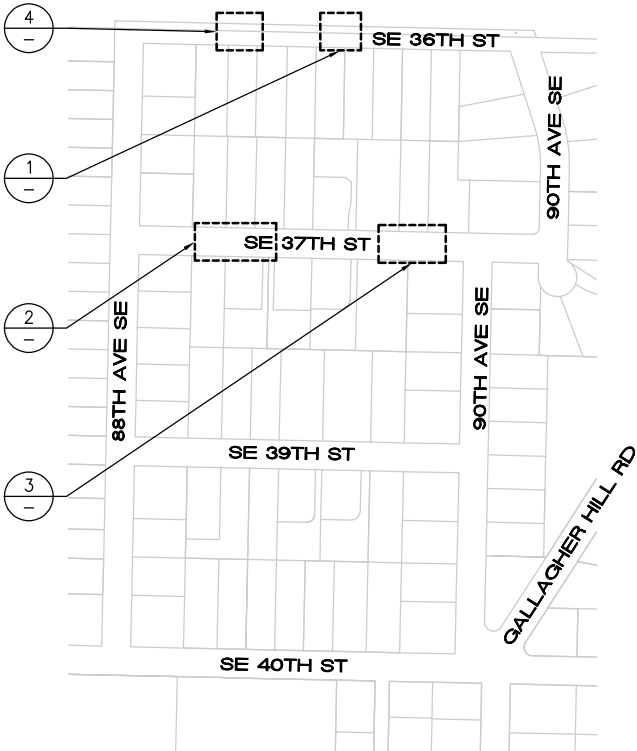


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CHECK	CEM

**CITY OF MERCER ISLAND**  
**2023 STREET RELATED STORM**  
**DRAINAGE IMPROVEMENTS**

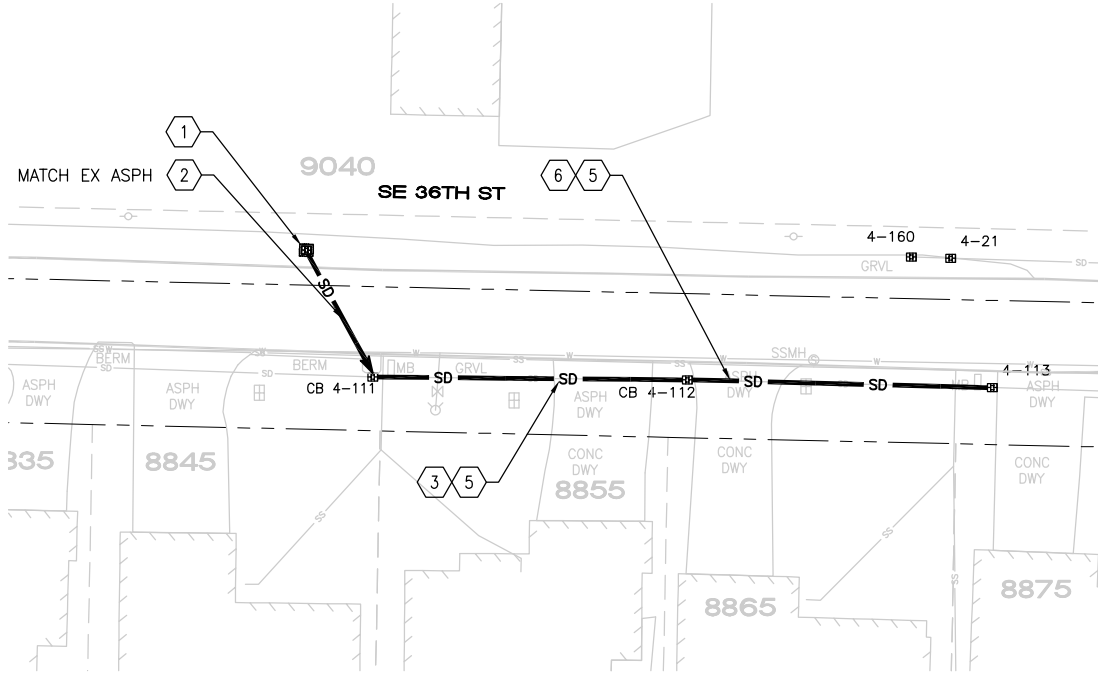
RESIDENTIAL DRAINAGE IMPROVEMENTS  
MADRONA CREST EAST

PROJECT	23-18
SCALE	1"=20'
SHEET	<b>3</b> OF <b>7</b>

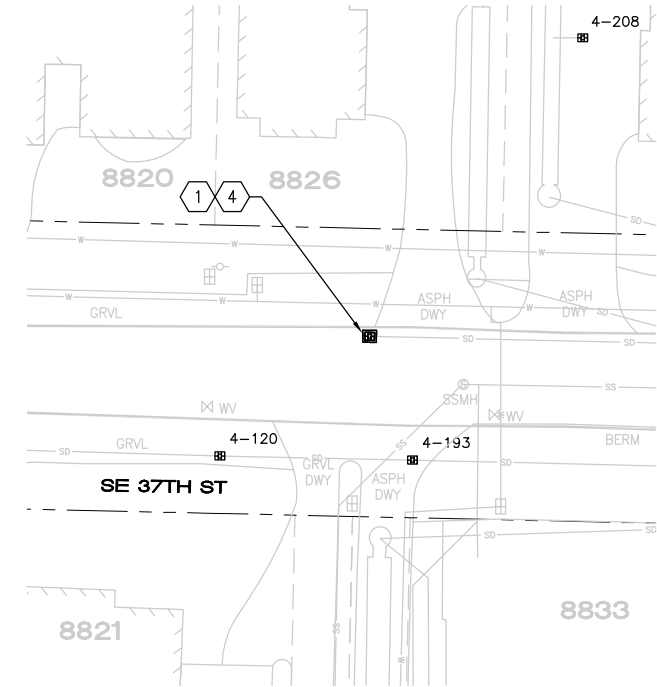


KEY MAP

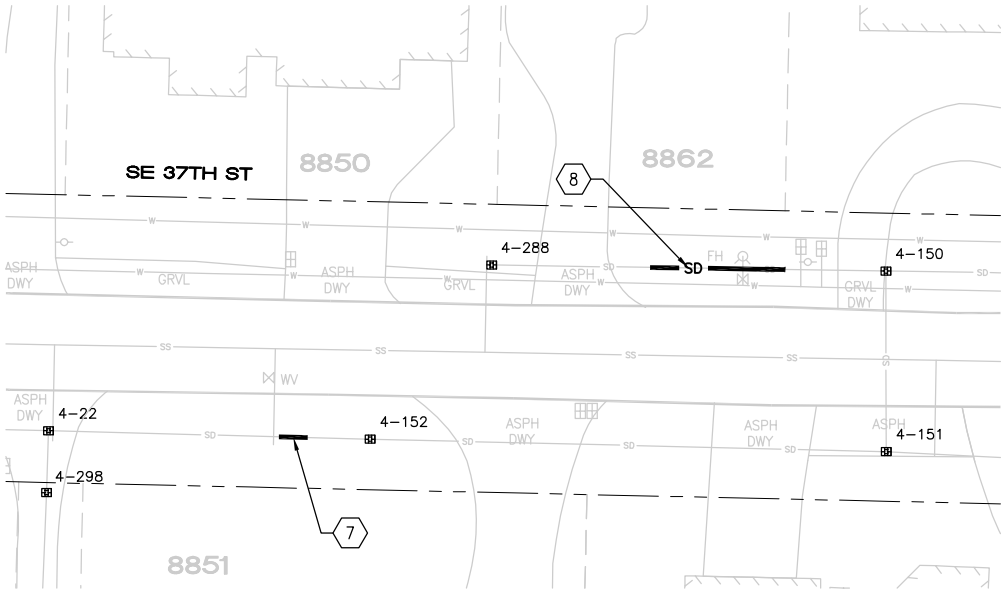
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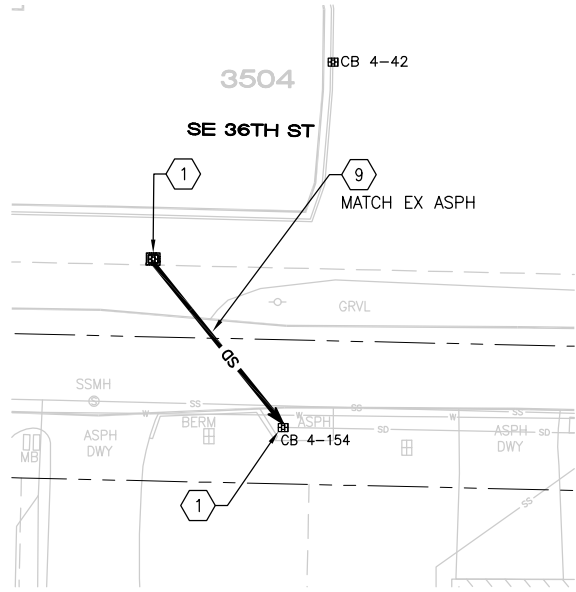
1  
DETAIL  
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2  
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3  
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4  
DETAIL  
NTS

GENERAL NOTES

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CONSTRUCTION NOTES

1. INSTALL NEW TYPE 1 CB AS FIELD LOCATED PER MI STD DTL D-8/6 AND D-20/6. ADJUST TO GRADE PER DTL 2/7.
2. INSTALL APPROX 29 LF OF 8" DI PIPE AT 2% MIN SLOPE AND 1' MIN COVER.
3. REPLACE 41 LF OF 12" CMP W/ 12" DI PIPE BETWEEN EX CB 4-111 AND CB 4-112
4. EXPOSE END OF EX PIPE AND INSTALL CB
5. SAWCUT AND REPAVE DRIVEWAY W/ 4" HMA CL 1/2" OVER 3" CSTC OR AS DIRECTED BY ENGINEER
6. REPLACE 64 LF OF 12" CMP W/ 12" DI BETWEEN EX CB 4-112 AND CB 4-113
7. REPLACE APPROX 6 LF OF 12" CONC PIPE W/ 12" DI PIPE 48' DOWNSTREAM OF EX CB 4-22. CONNECT TO EX CONC PIPES W/ FERNCOS
8. REMOVE AND REPLACE APPROX 27 LF OF 12" CONC PIPE W/ 12" DI PIPE 33' DOWNSTREAM OF EX CB 4-288. CONNECT TO EX CONC PIPES W/ FERNCOS
9. INSTALL APPROX 44 LF OF 8" DI PIPE AT 2% MIN SLOPE AND 1' MIN COVER. CONNECT TO EX CB 4-154.



20 0 20  
SCALE: 1" = 20'



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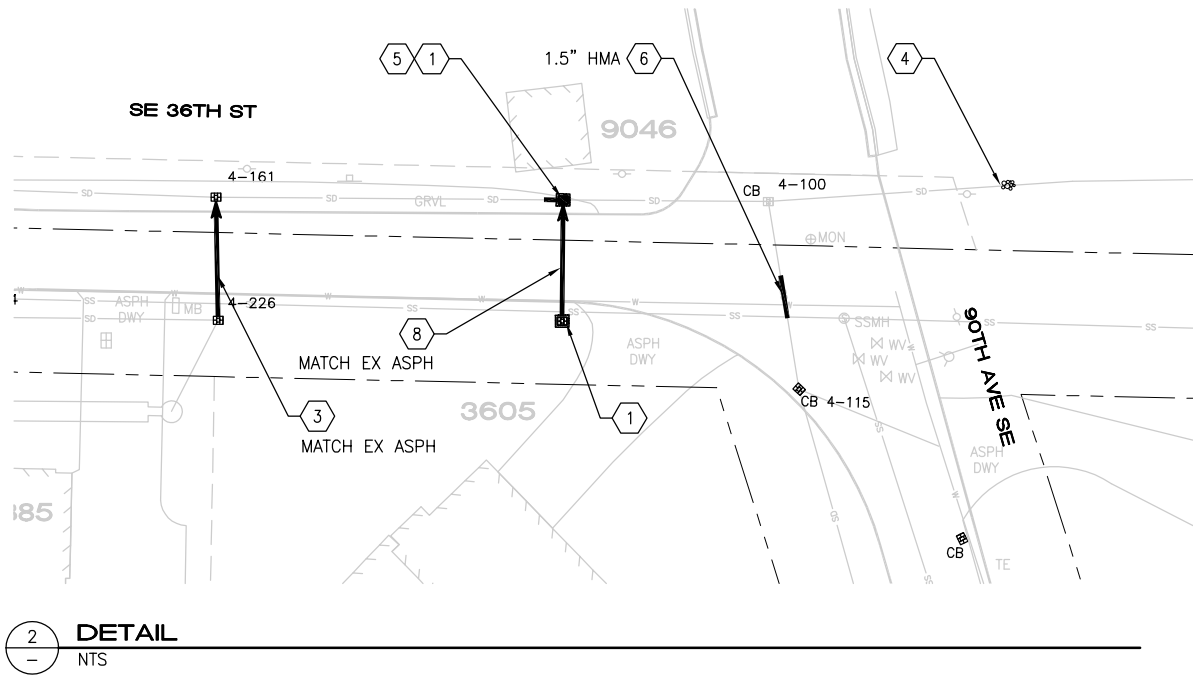
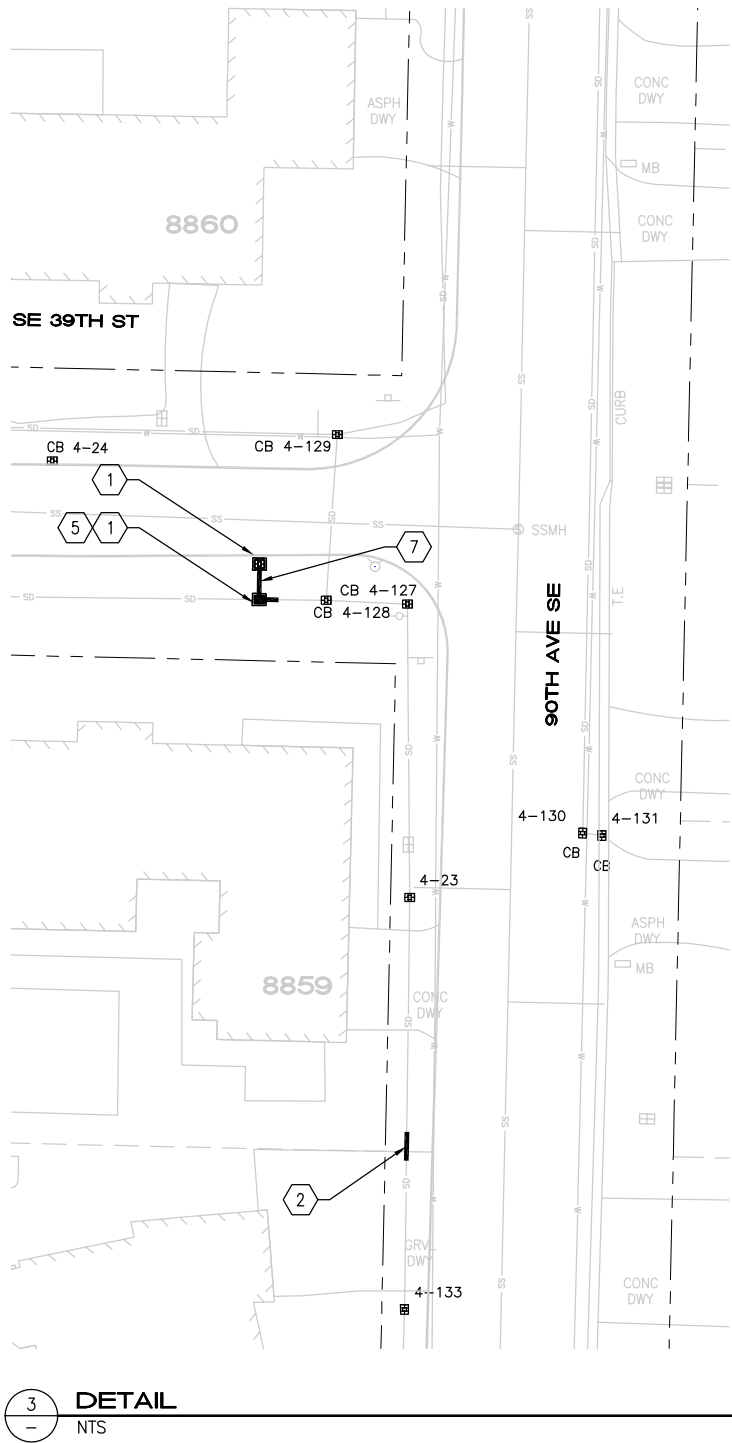
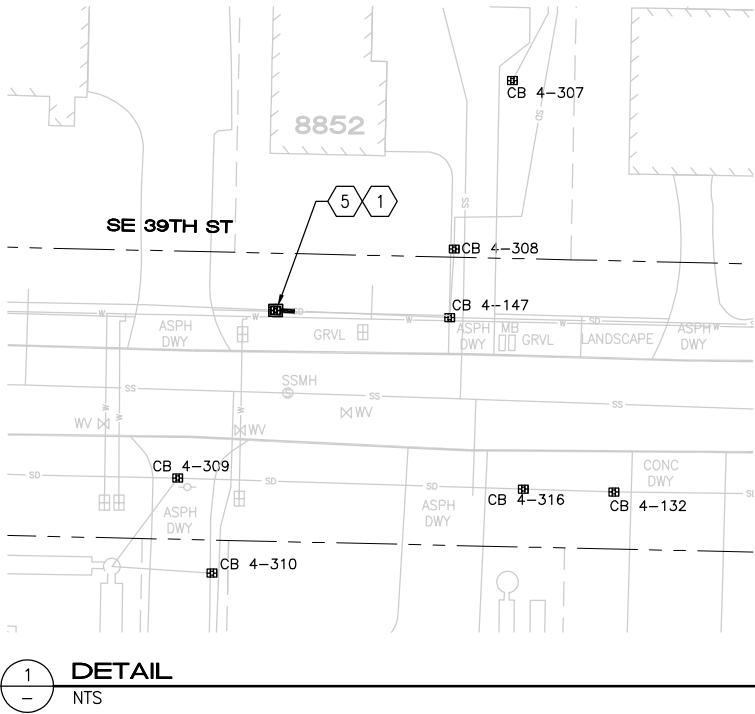
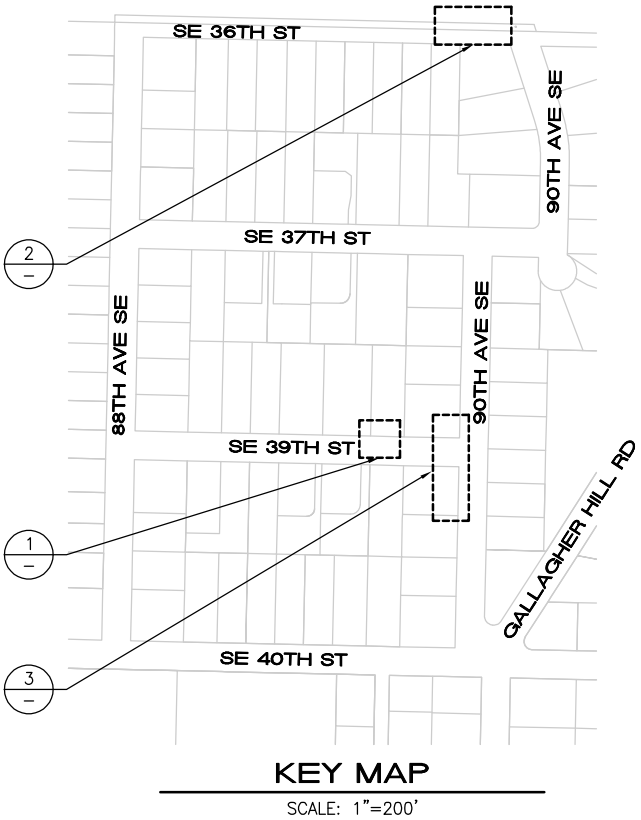
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CITY OF MERCER ISLAND  
2023 STREET RELATED STORM  
DRAINAGE IMPROVEMENTS

RESIDENTIAL DRAINAGE IMPROVEMENTS  
MADRONA CREST EAST

PROJECT	23-18
SCALE	1"=20'
SHEET	4 OF 7



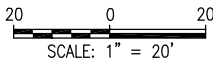


GENERAL NOTES

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3. ADJUST NEW AND EX UTILITIES TO GRADE PER DTL 2/7.

CONSTRUCTION NOTES

1. INSTALL NEW TYPE 1 CB AS FIELD LOCATED PER MI STD DTL D-8/6 AND D-20/6. ADJUST TO GRADE PER DTL 2/7.
2. REPLACE APPROX 6 LF OF 12" CONC PIPE W/ 12" DI PIPE APPROX 30' DOWNSTREAM OF EX CB 4-133. CONNECT TO CONC PIPES W/ FERNCOS
3. REMOVE AND REPLACE APPROX 24 LF OF 12" CONC PIPE W/ 12" DI PIPE BETWEEN EX CB 4-161 AND EX CB 4-226.
4. CLEAN PIPE INLET/OUTLET. INSTALL QUARRY SPALL PAD PER DTL 4/7
5. REMOVE APPROX 6 LF OF 12" CONC PIPE. CONNECT CB TO EX CONC PIPE W/ 3 LF 12" DI PIPE NIPPLE AND FERNCO.
6. REPLACE APPROX 9 LF OF 12" CONC PIPE W/ 12" DI PIPE APPROX 12' DOWNSTREAM OF EX CB 4-115. CONNECT TO CONC PIPES W/ FERNCOS
7. INSTALL APPROX 6 LF OF 8" DI PIPE AT 2% MIN SLOPE AND 1' MIN COVER TO CONNECT TWO NEW CBs
8. INSTALL APPROX 26 LF OF 8" DI PIPE AT 2% MIN SLOPE AND 1' MIN COVER.



REV. NO.	DATE	DESCRIPTION

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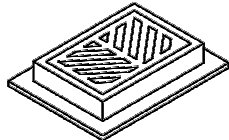


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CHECK	CEM

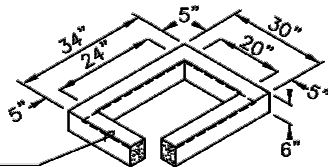
CITY OF MERCER ISLAND  
2023 STREET RELATED STORM  
DRAINAGE IMPROVEMENTS

RESIDENTIAL DRAINAGE IMPROVEMENTS  
MADRONA CREST EAST

PROJECT	23-18
SCALE	1"=20'
SHEET	5 OF 7

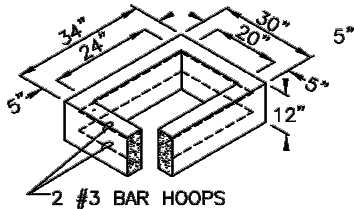


FRAME AND GRATE



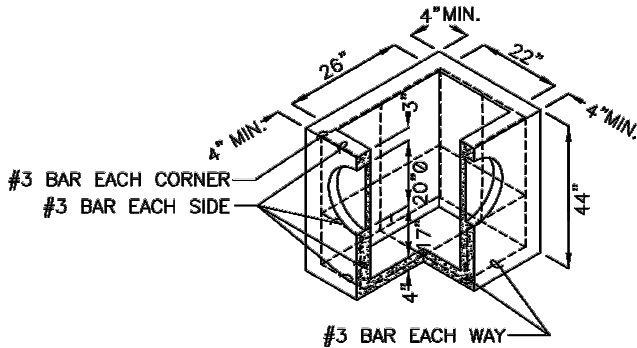
1 #3 BAR HOOP

6" RISER SECTION



2 #3 BAR HOOPS

12" RISER SECTION



PRECAST BASE SECTION  
(MEASUREMENT AT THE TOP  
OF THE BASE)

NOTES

- CATCH BASIN SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (AASHTO M199) AND C890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS.
- AS AN ACCEPTABLE ALTERNATIVE TO REBAR, WELDED WIRE FABRIC HAVING A MINIMUM AREA OF 0.12 SQUARE INCHES OR FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A497 (AASHTO M221). WIRE FABRIC SHALL NOT BE PLACED IN KNOCKOUTS.
- ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4,000.
- PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MIN. ALL PIPE SHALL BE INSTALLED IN FACTORY PROVIDED KNOCKOUTS. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT.
- KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAM. PLUS CATCH BASIN WALL THICKNESS.
- ROUND KNOCKOUTS MAY BE ON ALL 4 SIDES WITH MAX. DIAM. OF 20". KNOCKOUT MAY BE EITHER ROUND OR "D" SHAPE.
- THE MAX. DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5'-0".
- THE TAPER ON THE SIDES OF THE PRECAST BASE SECTION AND RISER SECTION SHALL NOT EXCEED 1/2"/FT.
- CATCH BASIN FRAME AND GRATES SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-612D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY OTHER COVER POSITION.
- FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.
- ALL GRATES SHALL BE HERRINGBONE UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.
- VANED GRATES SHALL BE USED ON SLOPES OF 6% OR GREATER.



CITY OF MERCER ISLAND  
STANDARD DETAILS  
DRAINAGE

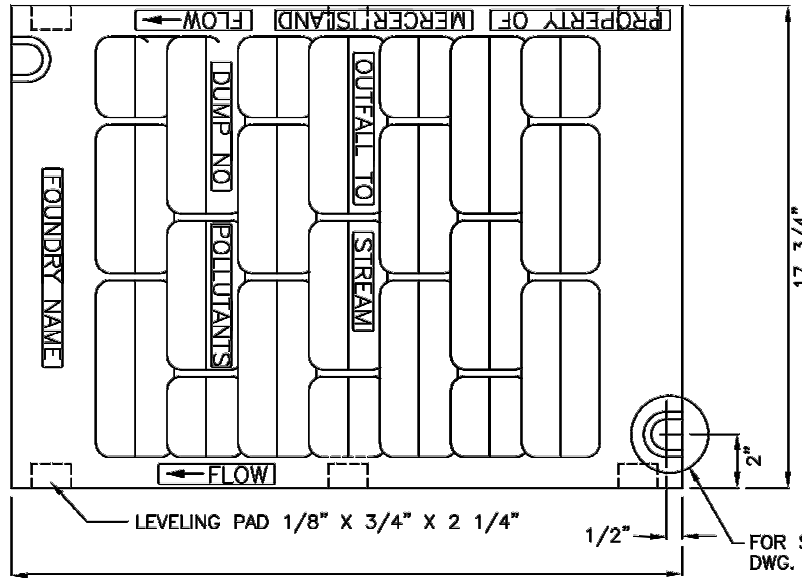
CATCH BASIN TYPE 1

02/02/2000

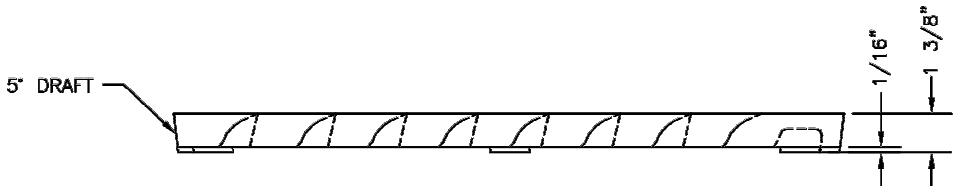
NO SCALE

D-8

8-50



PLAN



ELEVATION

NOTES

- SELF-LOCK VANED GRATE MANUFACTURER SUBJECT TO APPROVAL BY ENGINEER.
- USE WITH TWO LOCKING BOLTS 5/8"-11 NC STAINLESS TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) CAP SCREWS 2" LONG. NOTE SLOT DETAIL DWG. NO. D-18.
- MATERIAL IS DUCTILE IRON ASTM A536 GRADE 80-55-06.
- "OUTFALL TO STREAM DUMP NO POLLUTANTS" MAY BE LOCATED ON BORDER AREA.
- THE WORDS "PROPERTY OF MERCER ISLAND" SHALL BE OMITTED IF GRATE IS ON PRIVATE SYSTEM.



CITY OF MERCER ISLAND  
STANDARD DETAILS  
DRAINAGE

VANED GRATE

02/02/2000

NO SCALE

D-20

8-62



CM DESIGN GROUP

1318 East Pike Street  
Seattle, WA 98122  
206-659-0612

REV. NO. DATE DESCRIPTION

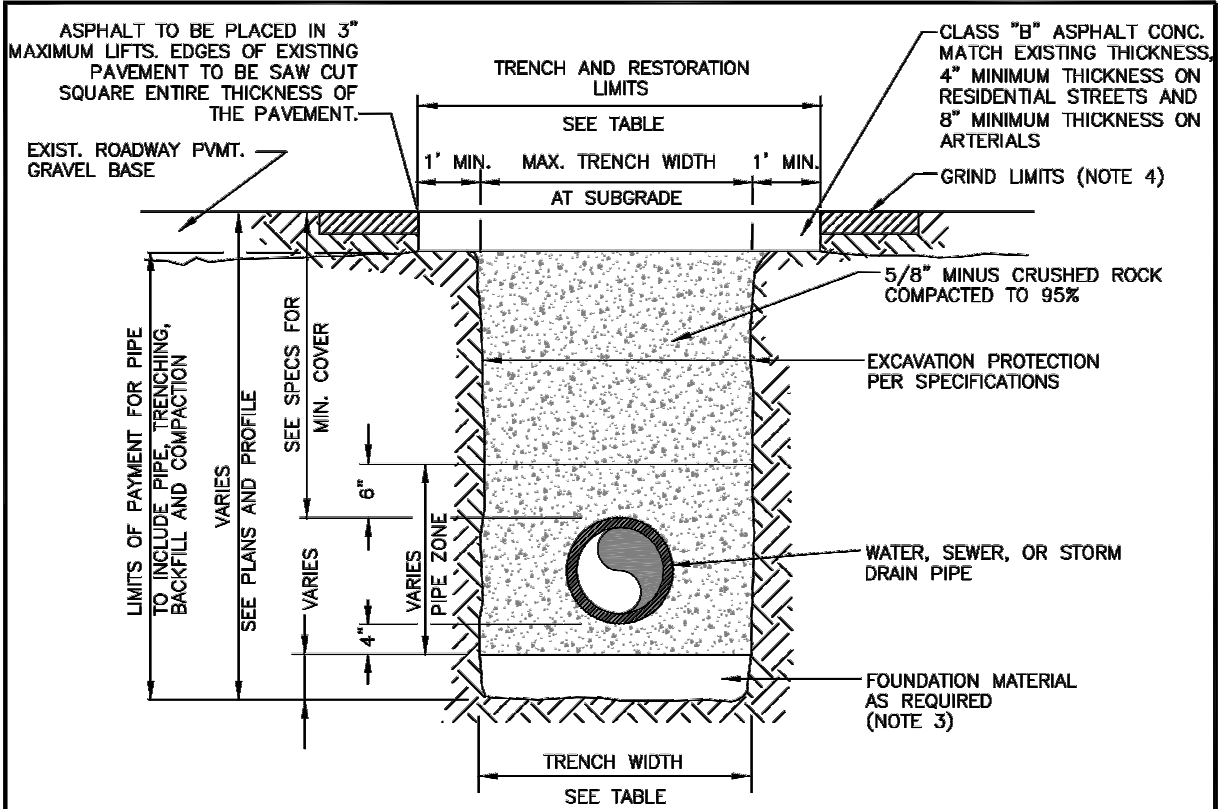
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DATE	5/5/23
DESIGN	EAS
DRAFT	EAS
CHECK	CEM

CITY OF MERCER ISLAND  
2023 STREET RELATED STORM DRAINAGE  
IMPROVEMENTS  
DETAILS

PROJECT	23-18
SCALE	NTS
SHEET	6 OF 7



WIDTH TRENCH			
PIPE SIZE	PIPE ZONE MAX. TRENCH WIDTH	MAX. TRENCH WIDTH AT SUBGRADE	MAX. RESTORATION WIDTH AT SURFACE
WATER SERVICES	2'-0"	2'-0"	4'-0"
4" OR 6"	2'-2"	3'-0"	5'-0"
8"	2'-4"	4'-0"	6'-0"
10"	2'-6"	4'-0"	6'-0"
12"	2'-8"	4'-6"	6'-6"
16"	3'-0"	5'-0"	7'-0"

**NOTES**

1. CALL IN LOCATES TWO BUSINESS DAYS BEFORE YOU DIG. (1-800-424-5555)
2. IN RIGHT-OF-WAY USE 100% 5/8 MINUS CRUSHED ROCK FOR BEDDING, PIPE ZONE AND BACKFILL
3. FOUNDATION MATERIAL SHALL BE 1 1/4" MINUS CRUSHED ROCK OR OTHER AGGREGATE AS APPROVED BY CITY ENGINEER.
4. GRIND AND OVERLAY LIMITS SHALL EXTEND A MINIMUM OF 10' PAST THE END OF TRENCH AREAS.
5. SEAL ALL FINAL PATCHING AND PAVING SEAMS WITH LIQUID ASPHALT. SQUEEGEE OR MOP THE SEALER. COVER WITH DRY SAND.



**CITY OF MERCER ISLAND  
STANDARD DETAILS  
WATER**

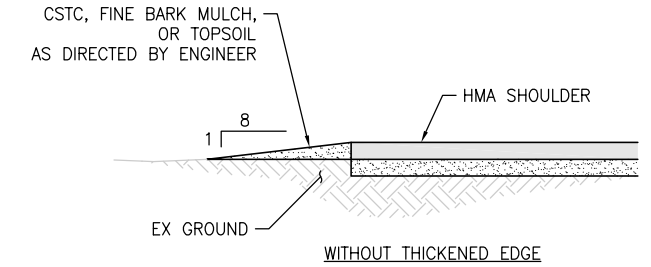
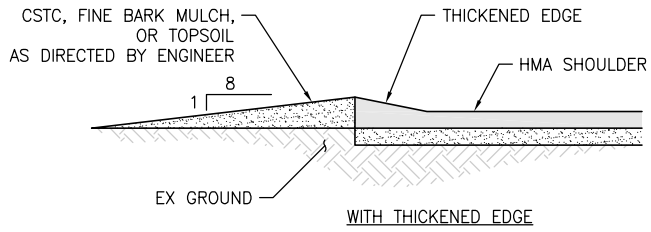
**TRENCH SECTION**

3-29-2021

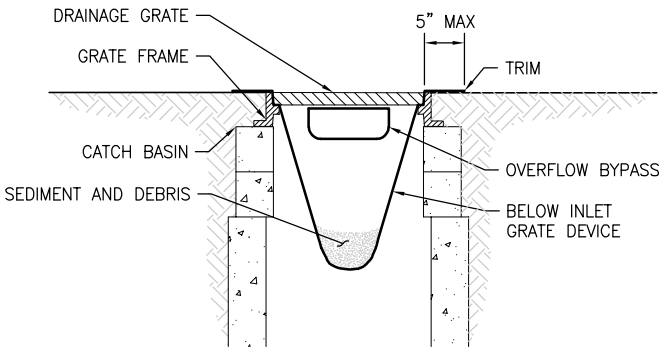
NO SCALE

**W-3**

APPROVED



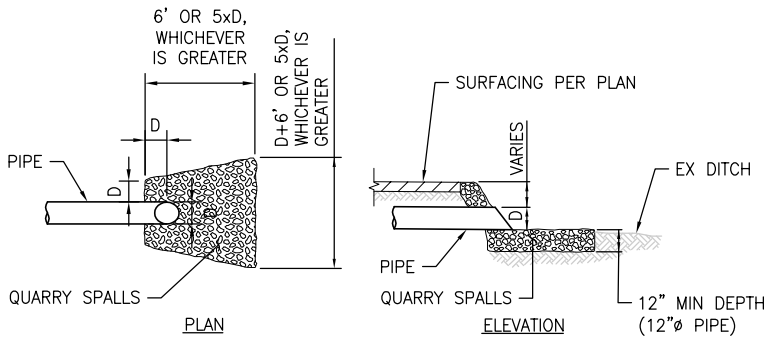
**1 EDGE RESTORATION**  
NTS



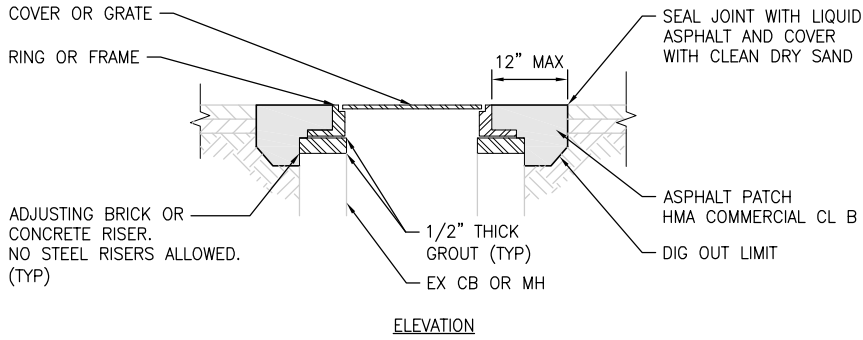
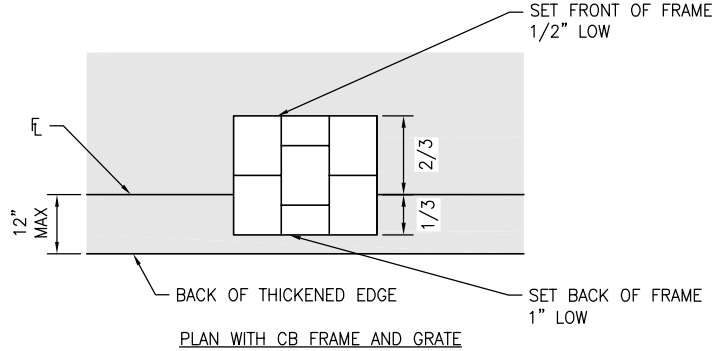
**NOTES:**

1. SIZE THE BELOW INLET GRATE DEVICE (BIGD) FOR THE STORM WATER STRUCTURE IT WILL SERVICE.
2. THE BIGD SHALL HAVE A BUILT-IN HIGH-FLOW RELIEF SYSTEM (OVERFLOW BYPASS).
3. THE RETRIEVAL SYSTEM MUST ALLOW REMOVAL OF THE BIGD WITHOUT SPILLING THE COLLECTED MATERIAL.

**3 INLET PROTECTION**  
NTS



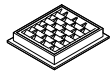
**4 SPILLWAY INLET/OUTLET**  
NTS



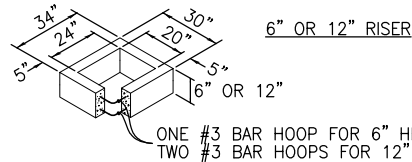
**NOTES:**

1. ASPHALT PERIMETER SHALL EXTEND 2" BELOW ADJUSTMENT RINGS.
2. UTILITIES WITH CONCRETE RINGS AROUND STRUCTURE SHALL HAVE CONCRETE REMOVED AND REPLACED WITH ACP PER THIS DETAIL.
3. ADD OR REMOVE BRICK AND/OR RISERS TO ACHIEVE REQUIRED FINISHED RIM ELEVATION.
4. PACK GROUT TO FILL ALL VOIDS. CASTING AND RISER OR BRICKS SHALL BE FULLY SUPPORTED.

**2 TYPICAL UTILITY ADJUSTMENT**  
NTS

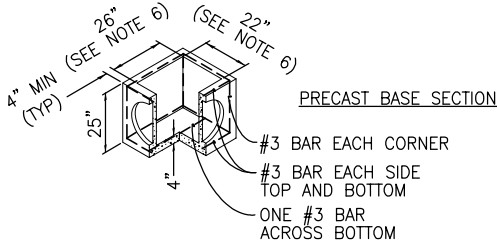


FRAME AND VANED GRATE



**NOTES:**

1. THE KNOCKOUT DIAMETER SHALL NOT BE GREATER THAN 18". KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM TO 2.5" MAXIMUM. PROVIDE A 1.5" MINIMUM GAP BETWEEN THE KNOCKOUT WALL AND THE OUTSIDE OF THE PIPE. AFTER THE PIPE IS INSTALLED, FILL THE GAP WITH JOINT MORTAR.
2. THE MAXIMUM DEPTH FROM THE FINISHED GRADE TO THE LOWEST PIPE INVERT SHALL BE 5'.
3. THE FRAME AND GRATE MAY BE INSTALLED WITH THE FLANGE UP OR DOWN. THE FRAME MAY BE CAST INTO THE ADJUSTMENT SECTION.
4. THE PRECAST BASE SECTION MAY HAVE A ROUNDED FLOOR AND THE WALLS MAY BE SLOPED AT A RATE OF 1:24 OR STEEPER.
5. THE OPENING SHALL BE MEASURED AT THE TOP OF THE PRECAST BASE SECTION.
6. ALL PICKUP HOLES SHALL BE GROUTED FULL AFTER THE INLET HAS BEEN PLACED.



**5 CONCRETE INLET**  
NTS



**CM DESIGN GROUP**

1318 East Pike Street  
Seattle, WA 98122  
206-659-0612

REV. NO. DATE DESCRIPTION

**BID DOCUMENT**



DATE	5/5/23
DESIGN	EAS
DRAFT	EAS
CHECK	CEM

**CITY OF MERCER ISLAND  
2023 STREET RELATED STORM DRAINAGE  
IMPROVEMENTS**

DETAILS

PROJECT 23-18  
SCALE NTS  
SHEET 7 OF 7