ENVELOPE

LAND
STRUCTURE
MANAGE

CLIENT:
THE WELLINGTON COMPANY

PROJECT:
SHELLY BAY
SHELLY BAY ROAD
WELLINGTON

PLAN SET:
CIVIL ENGINEERING DRAWINGS

ISSUE:
RESOURCE CONSENT

DATE:
14th SEPTEMBER 2016

REFERENCE:
1098-01

LOCATION PLAN
SCALE A1 - 1:5000, A3 - 1:10000
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LEGEND:

- Indicates existing contours shown at 2.0m intervals.
- Indicates extent of proposed bulk earthworks.

NOTES:

1. Existing contours are from Calibre site survey January 2016 and Wellington City Council GIS data.
2. Levels are in terms of Wellington Vertical Datum 1953 ORIGIN RM II SO 31470 - RL 3.05m.
3. All finished floor levels (FFL's) are indicative only and subject to details design.
LEGEND:
- Indicates existing contours shown at 1.0m intervals
- Indicates extent of proposed bulk earthworks

NOTES:
1. Existing contours are from Calibre site survey January 2016 and Wellington City Council laser data.
2. Elevations are in terms of Wellington Vertical Datum 1953 ORNRM II SO 31470 - RL 3.05m.
3. All finished floor levels (FFL's) are indicative only and subject to detail design.
LEGEND:

- Indicates existing contours shown at 1.0m intervals
- Indicates extent of proposed bulk earthworks

NOTES:

1. Existing contours are from Calibre Site Survey January 2016 and Wellington City Council GIS data.
2. Levels are in terms of Wellington Vertical Datum 1953 Origin RM II SO 31470 RL 3.05m.
3. All finished floor levels (FFL's) are indicative only and subject to design.

This design and drawing shall only be used for the purpose for which it was created and shall not be accepted or released except in accordance with the terms of the Resource Consent granted on 14-Sep-2016.
LEGEND:
- Indicates existing contours shown at 0.5m intervals
- Indicates extent of proposed bulk earthworks

NOTES:
1. Existing contours are from Calibre site survey Jan 2016 and Wellington City Council data.
2. Elevations in terms of Wellington Vertical Datum RL 1953 ORIGIN RM II SO 31470 - RL 3.05m.
3. All finished floor levels (FFL's) are indicative only and subject to details design.

THE WELLINGTON COMPANY
SHELLY BAY
WELLINGTON

EXISTING CONTOUR PLANS
SHEET 3 OF 3

THE WELLINGTON COMPANY
SHELLY BAY
WELLINGTON

EXISTING CONTOUR PLANS
SHEET 3 OF 3
LEGEND:
- Indicates existing contours shown at 2.0m intervals
- Indicates existing contours (under design) shown at 0.5m intervals
- Indicates proposed contours shown at 0.2m intervals
- Indicates extent of proposed bulk earthworks

NOTES:
1. Existing contours are from Calibre site survey January 2016 and Wellington City Council data.
2. Proposed contours shown are finished ground levels.
3. Levels are in terms of Wellington Vertical Datum 1953 and grid in metres, AS 1966.
4. Proposed retaining/stabilised batter details to be confirmed at design stage (engineering approval stage).
5. All finished floor levels are indicative only and subject to details design.

This design and drawing shall only be used for the purpose for which it was prepared and shall not be used in whole or in part without the approval of Envelope Engineering Limited, who shall be entitled to withdraw the whole or part of the design and drawing on the terms and conditions specified hereby.
EXISTING CONTOURS ARE FROM CALIBRE SITE SURVEY JANUARY 2016 AND WELLINGTON CITY COUNCIL GIS DATA.

LEVELS ARE IN TERMS OF WELLINGTON VERTICAL DATUM 1953.

EXISTING TREES TO REMAIN

INDICATES EXISTING CONTOURS

INDICATES PROPOSED CONTOURS

SHOWN AT 0.2m INTERVALS

SHOWN AT 0.5m INTERVALS

SHOWN AT 2.0m INTERVALS

INDICATES EXTENT OF PROPOSED BULK EARTHWORKS

INDICATES PROPOSED CONTOURS

SHOWN AT FINISHED GROUND LEVELS.

PROPOSED CONTOURS SHOWN ARE FINISHED GROUND LEVELS.

NOTES:

1. DRAFT CONTURS ARE FROM CALIBRE SITE SURVEY JANUARY 2016 AND WELLINGTON CITY COUNCIL GIS DATA.

2. PROPOSED CONTURS SHOWN ARE FINISHED GROUND LEVELS

3. LEVELS ARE IN TERMS OF WELLINGTON VERTICAL DATUM 1953

4. PROPOSED RETAINING/STABILISED BATTER DETAILS TO BE CONFIRMED AT DETAIL (DESIGN/ENGINEERING) APPROVAL STAGE.

5. ALL INTERCEPTS OF PROPERTY ARE APPROXIMATE ONLY AND SUBJECT TO DETAILS DESIGN.

REV

DATE

PROPOSED RETAINING/STABILISED BATTER DETAILS TO BE ALL FINISHED FLOOR LEVELS (FFL's) ARE INDICATIVE ONLY AND CONFIRMED AT DETAILED DESIGN/ENGINEERING APPROVAL STAGE.

ORIGIN RM II SO 31470 - RL 3.05m

RESOURCES CONSENT ISSUE

REVISIONS:

BATTER & FILL

FFL~4.10

3.0

3.4

3.2

4.0

6.4

INDICATES PROPOSED CONTOURS

STABILISED BATTER

RETAINING/

FFL~3.70

3.4

7.6

3.4

3.4

3.4

14.0

RETAINING/STABILISED BATTER

3.6

3.8

3.4

5.0

3.2

3.0

2.8

2.6

2.6

2.6

FFL~3.80

7.4

11.8

13.4

7.8

11.2

11.2

3.2

4.0

EXISTING TREES TO REMAIN

3.4

3.4

3.4

11.4

2.4

5.0

3.0

2.8

2.6

2.6

2.6


THE WELLINGTON COMPANY
WELLINGTON

ENVELOPE ENGINEERING
PO BOX 68946 NEWTON 1141
L1, 125 VINCENT STREET
AUCKLAND CITY 1010

L1, 125 VINCENT STREET
AUCKLAND CITY 1010

14-Sep-2016

1098-01

212

R1

R1
**LEGEND:**
1. **INDICATES EXISTING CONTOURS SHOWN AT 2.0m INTERVALS**
2. **INDICATES EXISTING CONTOURS (UNDER DESIGN) SHOWN AT 0.5m INTERVALS**
3. **INDICATES PROPOSED CONTOURS SHOWN AT 0.2m INTERVALS**
4. **INDICATES EXTENT OF PROPOSED BULK EARTHWORKS**

**NOTES:**
1. EXISTING CONTOURS ARE FROM CALEB SITE SURVEY JANUARY 2016 AND WELLINGTON CITY COUNCIL GIS DATA.
2. PROPOSED CONTOURS SHOWN ARE FINISHED GROUND LEVELS.
3. LEVELS ARE IN TERMS OF WELLINGTON VERTICAL DATUM 1953 ORIGIN RM II SO 31470 - RL 3.05m.
4. PROPOSED RETAINING/STABILISED BATTER DETAILS TO BE CONFIRMED AT DETAILED DESIGN/ENGINEERING APPROVAL STAGE.
5. ALL FINISHED FLOOR LEVELS (FFL's) ARE INDICATIVE ONLY AND SUBJECT TO DETAILS DESIGN.
LEGEND:

- INDICATES EXISTING CONTOURS SHOWN AT 2.0m INTERVALS
- INDICATES CUT CONTOURS SHOWN AT 0.5m INTERVALS
- INDICATES FILL CONTOURS SHOWN AT 0.5m INTERVALS
- INDICATES EXTENT OF PROPOSED BULK EARTHWORKS

NOTES:

1. EXISTING CONTOURS ARE FROM CALIBRE SITE SURVEY JANUARY 2016 AND WELLINGTON CITY COUNCIL GIS DATA.
2. CUT/FILL CONTOURS SHOWN ARE THE DIFFERENCE BETWEEN EXISTING GROUND LEVELS AND PROPOSED FINISHED GROUND LEVELS.
3. LEVELS ARE IN TERMS OF WELLINGTON VERTICAL DATUM 1953 ORIGIN RM II SO 31470 - RL 3.05m.
4. ALL FINISHED FLOOR LEVELS (FFL’s) ARE INDICATIVE ONLY AND SUBJECT TO DETAILS DESIGN.

SEE SHEET 1098-01-221
SEE SHEET 1098-01-222
SEE SHEET 1098-01-223
LEGEND:
- Indicates existing contours shown at 2.0m intervals.
- Indicates cut contours shown at 0.5m intervals.
- Indicates fill contours shown at 0.5m intervals.
- Indicates extent of proposed bulk earthworks.

NOTES:
1. Existing contours are from Calibre Survey January 2016 and Wellington City Council GIS data.
2. Cut and fill contours show the difference between existing ground levels and proposed finished ground levels.
3. Levels are in terms of Wellington Vertical Datum 1953 Origin RM II SO 31470 RL 3.05m.
4. All finished floor levels (FFL's) are indicative only and subject to details design.
**Legend:**

- Indicates existing contours shown at 2.0m intervals.
- Indicates cut contours shown at 0.5m intervals.
- Indicates fill contours shown at 0.5m intervals.
- Indicates extent of proposed bulk earthworks.

**Notes:**

1. Existing contours are from Calibre Site Survey January 2016 and Wellington City Council GIS data.
2. Cut/fill contours shown are the difference between existing ground levels and proposed finished ground levels.
3. Levels are in terms of Wellington Vertical Datum (WV 1953) Origin RM II SO 31470 - RL 3.05m.
4. All finished floor levels (FFL's) are indicative only and subject to details design.
LEGEND:

- Indicates existing contours shown at 2.0m intervals
- Indicates cut contours shown at 0.5m intervals
- Indicates fill contours shown at 0.5m intervals
- Indicates extent of proposed bulk earthworks

NOTES:

1. Existing contours are from Calibre Site Survey January 2016 and Wellington City Council GIS data.
2. Cut/fill contours shown are the difference between existing ground levels and proposed finished ground levels.
3. Levels are in terms of Wellington Vertical Datum 1993 (ORM 6 - 2.30m).
4. All finished floor levels (FFL's) are indicative only and subject to change.

The design and drawing shall only be used for the purpose for which it was created and shall not be altered or released without the prior consent of Envelope Engineering Limited. 

The Wellington Company
Shelly Bay
Wellington

PROPOSED CUT/FILL PLANS
SHEET 3 OF 3

ENVELOPE

L-1098-01

MANAGE

NEWTON 1141

 RESOURCE CONSENT

Drawing No

1098-01

Scale

1:500

Designer

PJ

Drawn

PJ

13-09-2016

Status

REVISION

Date

REVISIONS:

R1

Notes:

1. Existing contours are from Calibre Site Survey January 2016 and Wellington City Council GIS data.
2. Cut/fill contours shown are the difference between existing ground levels and proposed finished ground levels.
3. Levels are in terms of Wellington Vertical Datum 1993 (ORM 6 - 2.30m).
4. All finished floor levels (FFL's) are indicative only and subject to change.
SEE SHEET 1098-01-231
SEE SHEET 1098-01-232
SEE SHEET 1098-01-233
EXISTING CONTOURS ARE FROM CALIBRE SITE SURVEY JANUARY 2016 AND
REVISED:
METAL FOR CARPARK
MINOR TRIMMING &
SILT FENCE
INSTALLED ABOVE WHERE PRACTICAL
RUNOFF DIVERSION BUND
SW
LP
PRIOR TO BULK EARTHWORKS
2270m²
SW
FH
CATCHMENT A1
1.40Ha
8m x 25m x 1.5m (300m³)
SEDIMENT POND
PRIOR TO BULK EARTHWORKS
SW LINE TO BE INSTALLED
SW
DISCHARGE
LP
CLEARWATER DIVERSION TO BE
CATCHMENT B3 810m²
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b
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a
y
a
n
l
h
r
a
p
c
a
d
y
w
b

NOTES:

1. DIVERSION DRAINS AND OUTLETS TO BE INSTALLED WHERE PRACTICAL,
   WELLINGTON REGIONAL COUNCIL.

2. ALL WORKS TO COMPLY WITH CURRENT WELLINGTON CITY COUNCIL
   AND GREATER WELLINGTON REGIONAL COUNCIL EROSION AND SEDIMENT
   GUIDELINES.

3. DUE TO THE STEP NATURE OF THE GROUND ABOVE THE SITE, CLEARWATER
   DIVERSIONS AND OUTLET TOWARDS ALL RUNOFF BUND EROSION RISK,
   WHICH MAY REQUIRE PROVISION OF ADDITIONAL FORMATION, THROUGH
   PROVISION MEASURED IN BUND TO BE AGREED WITH GREATER
   WELLINGTON REGIONAL COUNCIL.

ENVELOPE
LAND STRUCTURE
MANAGE
THE WELLINGTON COMPANY
SHELLY BAY
WELLINGTON

PROPOSED EROSION AND SEDIMENT
CONTROL PLAN
SHEET 1 OF 3

This design and drawing are for the purpose of which it is used and
not for the purposes to extract design for the purposes of designing or engineering project.
The author of this drawing is the owner of the copyright for this design and drawing.

ENVELOPE ENGINEERING
PO BOX 68946 NEWTON 1141
L1, 125 VINCENT STREET
NOTES:

1. Existing contours are from Cal-B柔 survey, January 2016 and Wellington City Council digital height data and are surveyed at 1m intervals.

2. Levels are in terms of Wellington Vertical Datum (WVD) 1983.

3. All works are to comply with current Wellington City Council and Greater Wellington Regional Council erosion and sediment guidelines.

4. Due to the steep nature of the ground above the site, Clearwater Diversion drains and outlets are to be installed only where practical. Where not practical, works are to be staged and controlled with protection measures in place to be agreed with Greater Wellington Regional Council.
NOTES:

1. EXISTING CONTOURS ARE FROM CURRENT SITE SURVEY JANUARY 2016 AND WELLINGTON CITY COUNCIL DATA AND ARE SHOWN AT 1.0M INTERVALS.

2. LEVELS ARE IN TERMS OF WELLINGTON VERTICAL DATUM ORIGIN RM II SO 31470 - RL 3.05

3. ALL WORKS ARE TO COMPLY WITH CURRENT WELLINGTON CITY COUNCIL AND GREATER WELLINGTON REGIONAL COUNCIL EROSION AND SEDIMENT CONTROL GUIDELINES.

4. DUE TO THE STEEP NATURE OF THE GROUND ABOVE THE SITE, CLEARWATER DIVERSION DRAINS AND OUTLETS TO BE INSTALLED WHERE PRACTICAL. WHERE NOT PRACTICAL, WORKS ARE TO BE STAGED AND CONTROLLED WITH PROTECTION MEASURES IN PLACE TO BE AGREED WITH GREATER WELLINGTON REGIONAL COUNCIL.
Figure 12: Sediment retention pond

SEDIMENT RETENTION POND

Typical silt pond layout

Wide shallow level spillway over existing ground where possible, retain the existing grass cover. Bare areas to be stabilised with concrete or similar

Bund/diversion drains to ensure all flow enters at the inlets and

Secure the ends of the level spreader by burying within the earth bund

Paved geotextile overlaid with large rock to break up flow

All bare surfaces to be stabilised with vegetation if the pond is to remain through a wetter period, otherwise just the outer bunds needs to be stabilised

Floating decants

Sediment Forebay (1m deep)

Extra core width may be required to provide for machinery access for cleaning out.

NOTE
SINGLE DECANT DEVICE (FOR CATCHMENTS UP TO 2 ha)

Figure 13: Sediment retention pond - decant details

DECRYPT DEVICE DETAILS
NOTES:
1. CONTOURS SHOWN ARE FINISHED GROUND LEVELS AND ARE SHOWN AT 0.2M INTERVALS ON FLAT AREAS AND 2.0M INTERVALS ON STEEPER AREAS.
2. LEVELS ARE IN TERMS OF WELLINGTON VERTICAL DATUM 1953 ORIGIN RM II SO 31470 - RL 3.05m.
1. Contours shown are finished ground levels and are shown at 0.2m intervals on flat areas and 2.0m intervals on steeper areas.

2. Levels are in terms of Wellington Vertical Datum, RM II SO 31470 - RL 3.05m.
NOTES:

1. CONTOURS SHOWN ARE FINISHED GROUND LEVELS AND ARE SHOWN AT 0.2m INTERVALS ON FLAT AREAS AND 2.0m INTERVALS ON STEEPER AREAS.

2. LEVELS ARE IN TERMS OF WELLINGTON VERTICAL DATUM 1953 ORIGIN RM II SO 31470 - RL 3.05m
NOTES:

1. CONTOURS SHOWN ARE FINISHED GROUND LEVELS AND ARE SHOWN AT 0.2M INTERVALS ON FLAT AREAS AND 2.0M INTERVALS ON STEEPER AREAS.

2. LEVELS ARE IN TERMS OF WELLINGTON VERTICAL DATUM RM II SO 31470 - RL 3.05m
NOTES:
1. Contours shown are finished ground levels and are shown at 0.2m intervals on flat areas and 2.0m intervals on steeper areas.
2. Levels are in terms of Wellington Vertical Datum MCE 1953.
NOTES:

1. CONTOURS SHOW MAJOR TRIBES DISGW AND LEVELS AND ARE SHOWN AT 0.1M INTERVALS ON FLAT AREAS AND 2.0M INTERVALS ON STEEP AREAS.

2. LEVELS ARE IN TERMS OF WELLINGTON VERTICAL DATUM RM II SO 31470 - RL 3.05m.
### NOTES:
1. **LONG SECTION SHOWN IN MILLIMETERS VERTICAL DISTANCE.**
2. **LEVELS ARE IN FORM OF WELLINGTON VERTICAL DATUM AND GIVEN BY 100 350.00-ML 350m.**

### ENVELOPE

#### CL: ROAD 41 SHELLY BAY ROAD

**LONG SECTION BETWEEN 2700.00 AND 2950.00**

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**LONG SECTION BETWEEN 2950.00 AND 3120.00**

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**HIGH PT LEVEL: 3.21**

**LOW PT LEVEL: 2.53**
NOTES:
1. VERTICLE DEPTHS SHOWN AS ALINEAL EFFECT.
2. LEVELS ARE IN TERMS OF WELLINGTON VERTICAL DATUM 1953 ORIGIN.
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<td>3.05</td>
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</tr>
<tr>
<td>32.00</td>
<td>0.00</td>
<td>3.05</td>
<td>2.24</td>
</tr>
</tbody>
</table>

**NOTES:**
1. LONG SECTIONS SHOWN WITH A 1% VERTICAL DRAPE.
2. LEVELS ARE IN TERMS OF WELLINGTON VERTICAL DATUM R.L. 0.00.

---

**REV:** REVISIONS:
1. STRUCTURE
2. MANAGE
3. RD
4. ENVELOPE

**SCALE:**
- A1 - 1:500 Horz, 1:100 Vert
- A3 - 1:1000 Horz, 1:200 Vert

**DATE:**
- DATE: 14-Sep-2016
- CHECKED: AUCKLAND CITY 1010
- DESIGNED: PO BOX 68946 NEWTON 1141

**ENVELOPE ENGINEERING**
TYPICAL ROAD CROSS-SECTION
ROAD 1 - SHELLY BAY ROAD

MIN. CBR 5 SUBGRADE

STANDARD KERB & CHANNEL

TYPICAL ROAD CROSS-SECTION
ROAD 1 - SHELLY BAY ROAD
WITH CARPARKING

MIN. CBR 5 SUBGRADE

STANDARD KERB & CHANNEL

TYPICAL ROAD CROSS-SECTION
ROAD 1 - SHELLY BAY ROAD
CH 2676.3m to 2856.9m

MIN. CBR 5 SUBGRADE

STANDARD KERB & CHANNEL

NOTES:

1. ALL METAL DEPTHS AND ROAD LAYERS TO BE CONFIRMED AT DETAIL DESIGN/ENGINEERING APPROVAL STAGE.
NOTES:

1. Contours shown and proposed finished ground levels are shown at 50m intervals.
2. Levels are in terms of Wellington vertical datum 1953 origin.
3. All works to comply with the Wellington City Council Code of Land Development.
4. All stormwater pipe to be RCRRJ Class 2 unless shown otherwise.
5. All stormwater wastewater network will be confirmed at detailed design/engineering approval stage.
6. Area stormwater single sump leads to lower class A & B.
7. All stormwater double sump leads to lower class A & B.
8. All wastewater pipe to be 250mm OD or 300mm (unless otherwise shown).

LEGEND:

- Indicates stormwater existing
- Indicates stormwater proposed
- Indicates stormwater to be removed
- Indicates stormwater overland flow path
- Indicates wastewater existing
- Indicates wastewater proposed
- Indicates wastewater to be removed
- Indicates wastewater rising main

This design and drawing shall only be used for the purpose for which it was created and shall not be altered, reproduced, or released without the permission of Envelope Engineering Limited. Any alteration to the design or drawing shall not be made without the written consent of Envelope Engineering Limited.
The contours shown are proposed finished ground levels and are shown at 0.5m intervals.

Levels are in terms of Wellington Vertical Datum (RVZ) at datum 1.25m.

All works to comply with the Wellington City Council Code of Land Development.

1. Levels are in terms of Wellington Vertical Datum (RVZ) at datum 1.25m.
2. All works to comply with the Wellington City Council Code of Land Development.
3. All stormwater pipes to be RCRRJ Class 2 unless shown otherwise.
4. All wastewater pipes to be PE100 (HPPE SDR 17.6) unless otherwise.
5. All stormwater & wastewater pipe sizes will be confirmed at detailed design stage and DWG.
6. All stormwater & wastewater pipes to be removed unless otherwise shown.
7. All wastewater & stormwater pipes to be PE100 (HPPE SDR 17.6) unless otherwise shown.
8. All works to comply with the Wellington City Council Code of Land Development.

NOTES:

1. Levels are in terms of Wellington Vertical Datum (RVZ) at datum 1.25m.
2. All works to comply with the Wellington City Council Code of Land Development.
3. All stormwater pipes to be RCRRJ Class 2 unless shown otherwise.
4. All wastewater pipes to be PE100 (HPPE SDR 17.6) unless otherwise.
5. All stormwater & wastewater pipe sizes will be confirmed at detailed design stage and DWG.
6. All stormwater & wastewater pipes to be removed unless otherwise shown.
7. All wastewater & stormwater pipes to be PE100 (HPPE SDR 17.6) unless otherwise shown.
NOTES:
1. CONTURS SHOWN ARE PROPOSED FINISHED GROUND LEVELS AND ARE SHOWN AT 2.0m INTERVALS.
2. LEVELS ARE IN TERMS OF WELLINGTON VERTICAL DATUM 1953 RM II SO 31470 - RL 3.05m.
3. ALL WORKS TO COMPLY WITH THE WELLINGTON CITY COUNCIL CODE OF LAND DEVELOPMENT.
4. ALL STORMWATER PIPES TO BE RCRRJ CLASS 2 UNLESS SHOWN OTHERWISE.
5. ALL STORMWATER & WASTEWATER PIPES’ SIZES WILL BE CONFIRMED AT DETAIL DESIGN/ENGINEERING APPROVAL STAGE.
6. ALL STORMWATER SINGLE SUMPS TO BE RCRRJ CLASS 4 DN 225.
7. ALL STORMWATER DOUBLE SUMPS TO BE RCRRJ CLASS 4 DN 300.
8. ALL WASTEWATER PIPES TO BE PE100 (HPPE SDR 17.6) UNLESS OTHERWISE SHOWN.

LEGEND:
- Indicates Stormwater - Existing
- Indicates Stormwater - Proposed
- Indicates Stormwater - To Be Removed
- Indicates Stormwater - Overland Flow Path
- Indicates Wastewater - Existing
- Indicates Wastewater - Proposed
- Indicates Wastewater - To Be Removed
- Indicates Wastewater - Rising Main

This design and drawing shall only be used for the purpose for which it was created and shall not be used or reproduced without the permission of Envelope Engineering Limited. For alterations to the original plans or drawings, the original plan and/or drawing shall be used as the basis for the design and drawings.
ALL MANHOLES TO BE DN 1050 UNLESS SHOWN OTHERWISE.

HARDFILL BACKFILL ALL TRENCHES BELOW CARRIAGEWAY AND 1m PIPE SIZES, INVERTS & GRADES AND MANHOLE DEPTHS ARE PRELIMINARY.

NOTE:

1. Indicate proposed finished ground level.
2. Indicates existing ground level (prev. emp./works).
3. Long sections are shown with a 5x vertical exaggeration.
4. Pipe sizes, invert & grades and manhole depths are preliminary and may be combined at detailed design (engineering approval stage).
5. Levels are in terms of Wellington vertical datum 1953.
6. All works to comply with the Wellington City Council code of land development.
7. All works are to be carried out in accordance with the Wellington City Council building code and by OSH.
8. All works to be carried out in accordance with the developer’s code.
9. Contractor to check all works against the plans before laying. Adjustment of any works levels at the contractors own risk due to tight tolerances.
10. Pipe lengths shown are the length of pipe between centers of manholes.
11. Hard hats indicate all trenches below carriageway and at the sides of manholes.

E.N.

THE WELLINGTON COMPANY
SHELBY BAY
WELLINGTON

STORMWATER LONGSECTIONS
SHEET 2 OF 5

ENVELOPE

LAND
STRUCTURE
MANAGE

DESIGNER
CHECKER
DATE
PROJECT
MANAGE

1098-01
421
R1
## Notes:

1. Indicates proposed finished ground level.
2. Indicates existing grade level (pre earthworks).
3. Long sections are shown with a 5x vertical exaggeration.
4. Pipe sizes, invert & grades and manhole depths are preliminary and may be combined at detailed design/initial stage.
5. Levels are in terms of Wellington Vertical Datum 1953.
6. Hardfill backfill all trenches below carriageway and 1m.
7. All manholes to be DN 1050 unless shown otherwise.
8. Contractor to check all inverts against pipe clashes before laying. Adjustments of any kind will be at the contractors’ own risk due to tight tolerances.
9. All manholes to be DN 1050 unless shown otherwise.
10. Class 2 pipes to be RCRRJ class 2 unless shown otherwise.
11. Hardfill backfill all trenches below carriageway and to the sides of the carriageway.

### SW Line 09

<table>
<thead>
<tr>
<th>SW Line No</th>
<th>Pipe Length &amp; MH No.</th>
<th>Gradient &amp; Pipe Size</th>
<th>Lid Level</th>
<th>Invert Level</th>
<th>Depth to Invert</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWMH 7-2</td>
<td>DN 1500</td>
<td>1.00%</td>
<td>2.81</td>
<td>2.55</td>
<td>0.70</td>
</tr>
<tr>
<td>SWMH 7-2</td>
<td>DN 825</td>
<td>1.00%</td>
<td>9.5m</td>
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<td></td>
</tr>
<tr>
<td>SWMH 10-2</td>
<td>DN 300</td>
<td>2.39</td>
<td>1.58</td>
<td>1.95</td>
<td>1.58</td>
</tr>
<tr>
<td>SWMH 10-2</td>
<td>DN 1200</td>
<td>4.80%</td>
<td>1.10</td>
<td>4.50</td>
<td></td>
</tr>
<tr>
<td>SW MH 10-3</td>
<td>DN 300</td>
<td>0.70%</td>
<td>2.81</td>
<td>2.55</td>
<td>1.58</td>
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<tr>
<td>SW MH 10-3</td>
<td>DN 675</td>
<td>0.85%</td>
<td>1.58</td>
<td>1.57</td>
<td></td>
</tr>
<tr>
<td>SW MH 10-4</td>
<td>DN 300</td>
<td>1.10%</td>
<td>2.11</td>
<td>1.90</td>
<td></td>
</tr>
<tr>
<td>SW MH 10-4</td>
<td>DN 675</td>
<td>1.00%</td>
<td>4.80</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### SW Line 10

<table>
<thead>
<tr>
<th>SW Line No</th>
<th>Pipe Length &amp; MH No.</th>
<th>Gradient &amp; Pipe Size</th>
<th>Lid Level</th>
<th>Invert Level</th>
<th>Depth to Invert</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWMH 9-1</td>
<td>DN 1200</td>
<td>46.0%</td>
<td>3.45</td>
<td>1.83</td>
<td>1.66</td>
</tr>
<tr>
<td>SWMH 9-1</td>
<td>DN 675</td>
<td>1.90%</td>
<td>9.5m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SWMH 9-2</td>
<td>DN 300</td>
<td>0.95%</td>
<td>3.75</td>
<td>2.20</td>
<td>1.90</td>
</tr>
<tr>
<td>SWMH 9-2</td>
<td>DN 675</td>
<td>0.50%</td>
<td>3.75</td>
<td>2.20</td>
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</tbody>
</table>

### SW Line 11

<table>
<thead>
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<th>Pipe Length &amp; MH No.</th>
<th>Gradient &amp; Pipe Size</th>
<th>Lid Level</th>
<th>Invert Level</th>
<th>Depth to Invert</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWMH 10-2</td>
<td>DN 300</td>
<td>1.10%</td>
<td>3.08</td>
<td>2.11</td>
<td>1.57</td>
</tr>
<tr>
<td>SWMH 10-2</td>
<td>DN 675</td>
<td>1.00%</td>
<td>2.11</td>
<td>1.90</td>
<td></td>
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### SW Line 12

<table>
<thead>
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<th>SW Line No</th>
<th>Pipe Length &amp; MH No.</th>
<th>Gradient &amp; Pipe Size</th>
<th>Lid Level</th>
<th>Invert Level</th>
<th>Depth to Invert</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWMH 9-1</td>
<td>DN 1200</td>
<td>46.0%</td>
<td>3.45</td>
<td>1.83</td>
<td>1.66</td>
</tr>
<tr>
<td>SWMH 9-1</td>
<td>DN 675</td>
<td>1.90%</td>
<td>9.5m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SWMH 9-2</td>
<td>DN 300</td>
<td>0.95%</td>
<td>3.75</td>
<td>2.20</td>
<td>1.90</td>
</tr>
<tr>
<td>SWMH 9-2</td>
<td>DN 675</td>
<td>0.50%</td>
<td>3.75</td>
<td>2.20</td>
<td></td>
</tr>
</tbody>
</table>
NOTES:

1. Indicates Proposed Finished Ground Level
2. Indicates Existing Ground Level (Pre Earthworks)
3. Long Sections are shown with a 5x Vertical Exaggeration
4. Pipe sizes, invert depths and manhole depths are preliminary designs and will be confirmed at detailed design (engineering) approval stage.
5. Elevations are in terms of Wellington Vertical Datum 1953
6. All works to comply with the Wellington City Council Code of Land Development
7. All storms pipe to be RCRRJ Class 2 unless shown otherwise
8. All manholes to be shown unless shown otherwise
9. Contract to check all invert against pipe clashes before laying. Adjustment of any manhole level at the contractor’s own risk due to tight tolerances
10. Pipe length shown is the length of pipe between centres of manholes
11. Hardstand, All trenches below carriageway and to the side of any grassy areas

<table>
<thead>
<tr>
<th>SW LINE 11</th>
<th>PIPE LENGTH &amp; MH No.</th>
<th>GRADIENT &amp; PIPE SIZE</th>
<th>LID LEVEL</th>
<th>INVERT LEVEL</th>
<th>DEPTH TO INVERT</th>
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<tbody>
<tr>
<td>SW LINE 12</td>
<td>20.3m</td>
<td>3.50%</td>
<td>0.25</td>
<td>0.55</td>
<td>2.00</td>
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<tr>
<td>SW LINE 13</td>
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<td></td>
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<tr>
<td>SW LINE 14</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tbody>
</table>

MANHOLES:

1. SW MH 3-2
2. SW MH 10-2
3. SW MH 12-1
4. SW MH 10-3
5. SW MH 3-2
6. SW MH 10-1
7. SW MH 12-1
8. SW MH 10-3
9. SW MH 3-2
10. SW MH 10-1
11. SW MH 12-1
ALL WORKS TO COMPLY WITH THE WELLINGTON CITY COUNCIL CODE INDICATES EXISTING GROUND LEVEL (PRE EARTHWORKS)

ALL WASTEWATER PIPE TO BE 160 OD PE100 (HPPE SDR 17.6) UNLESS

INDICATES PROPOSED FINISHED GROUND LEVEL

PIPE SIZES, INVERTS & GRADES AND MANHOLE DEPTHS ARE PRELIMINARY DESIGN VALUES TO BE CONFIRMED AT DETAIL DESIGN ENGINEERING APPROVAL STAGE.

LEVELS ARE INTENDED TO MATCH WELLCITY VERTICAL DATUM 93 ORIGIN RM II SO 31470 - RL 3.05.

6. MUST WORKS TO COMPLY WITH THE WELLINGTON CITY COUNCIL CODE OF LAND DEVELOPMENT.

7. ALL WASTEWATER PIPE TO BE 160 OD PE100 UNLESS SHOWN OTHERWISE.

8. ALL MANHOLE TO BE 160 OD PE100 UNLESS SHOWN OTHERWISE.

9. CONTRACTOR TO CHECK ALL INSTALLATIONS PRIOR TO LAUNCHING, ACCEPTING OF ANY WORKS EXCLUDING ANY CONTRACTORS OWNERS DUE TO TIGHT TOLERANCES.

10. TRENCH LENGTH TO BE THE LENGTH OF PIPE BETWEEN CENTRE OF MANHOLE.

11. HARD PLACED ALL TRENCHES ARE DRY CUSHIONED AND IN HORIZONTAL CROSSOVERS.

NOTES:

1. 

2. 

3. 

4. 

5. 

6. 

7. 

8. 

9. 

10. 

11. 

DESIGN AND WILL BE CONFIRMED AT DETAILED DESIGN/ENGINEERING ORIGIN RM II SO 31470 - RL 3.05.

APPROVAL STAGE.

This design and drawing shall only be used for the purposes for which it was created and shall not be used to construct without the approval of Envelope Engineering Limited. The drawings shall not be altered for any purpose beyond the scope of this design and drawing.

<table>
<thead>
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<tbody>
<tr>
<td>Depth to Invert</td>
<td>SW Line</td>
<td>WWMH A1</td>
</tr>
<tr>
<td></td>
<td>PE100 SDR 17</td>
<td>1.20%</td>
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<tr>
<td></td>
<td>DN 1200</td>
<td>41.0m</td>
</tr>
<tr>
<td></td>
<td>SW Line</td>
<td>WWMH A2</td>
</tr>
<tr>
<td></td>
<td>PE100 SDR 160</td>
<td>1.20%</td>
</tr>
<tr>
<td></td>
<td>DN 1200</td>
<td>1.20%</td>
</tr>
<tr>
<td></td>
<td>DN 1200</td>
<td>1.20%</td>
</tr>
<tr>
<td></td>
<td>SW Line</td>
<td>WWMH A5</td>
</tr>
<tr>
<td></td>
<td>PE100 SDR 160</td>
<td>1.20%</td>
</tr>
</tbody>
</table>

ENVELOPE COMPANY
PO BOX 68946 NEWTON 1141

DATE: 14-Sep-2016

DRAWN: [Signature]

CHECKED: [Signature]

DESIGN: [Name]

WASTEWATER LONGSECTIONS SHEET 1 OF 5

THE WELLINGTON COMPANY
SHELLY BAY
WELLINGTON

ENVELOPE MANAGE LAND STRUCTURE

PROJECT: [Name]

1098-01
430 R1
PIPE LENGTH SHOWN IS THE LENGTH OF PIPE BETWEEN CENTRE OF ALL WASTEWATER PIPE TO BE 160 OD PE100 (HPPE SDR 17.6) UNLESS LEVELS ARE IN TERMS OF WELLINGTON VERTICAL DATUM 1953. CONTRACTOR TO CHECK ALL INVERTS AGAINST PIPE CLASHES BEFORE ALL WORKS TO COMPLY WITH THE WELLINGTON CITY COUNCIL CODE. ALL MANHOLES TO BE DN 1050 UNLESS SHOWN OTHERWISE.

NOTES:
1. * Indicates proposed finished ground level.
2. Indicates shifting ground level (pre earthworks).
3. Long sections are shown with a 5x vertical exaggeration.
4. Pipe sizes, invert levels and manhole depths are preliminary (to be confirmed at detailed design engineering approval stage).
5. Levels are in terms of Wellington vertical datum 1953. CHECK IN RED @ 300 + 300.
6. All works to comply with the Wellington City Council code of land development.
7. All manholes to be 160 OD PE100, unless shown otherwise.
8. All manholes to be 160 OD PE100, unless shown otherwise.
9. Contractors to check all invert levels against the clashes before lining acquisition of any manholes. All at the Contractors own risk due to tight tolerances.
10. Long section showing the length of pipe between centres of manholes.
11. Handline/locate all trenches before casing away and the end of any crossovers.

---

**WMMH B2**

<table>
<thead>
<tr>
<th>WW LINE B</th>
<th>PIPE LENGTH &amp; MH No.</th>
<th>GRADIENT &amp; PIPE SIZE</th>
<th>LID LEVEL</th>
<th>INVERT LEVEL</th>
<th>DEPTH TO INVERT</th>
</tr>
</thead>
<tbody>
<tr>
<td>WWMH B1</td>
<td>2.66</td>
<td>1.62</td>
<td>2.57</td>
<td>1.14</td>
<td>3.73</td>
</tr>
<tr>
<td>WWMH B2</td>
<td>2.90</td>
<td>0.64</td>
<td>2.90</td>
<td>0.62</td>
<td>3.60</td>
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<tr>
<td>WWMH B3</td>
<td>2.66</td>
<td>0.30</td>
<td>2.97</td>
<td>0.21</td>
<td>2.97</td>
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</tbody>
</table>

**WWMH A2**

<table>
<thead>
<tr>
<th>WW LINE B</th>
<th>PIPE LENGTH &amp; MH No.</th>
<th>GRADIENT &amp; PIPE SIZE</th>
<th>LID LEVEL</th>
<th>INVERT LEVEL</th>
<th>DEPTH TO INVERT</th>
</tr>
</thead>
<tbody>
<tr>
<td>WWMH A1</td>
<td>2.57</td>
<td>0.70</td>
<td>2.57</td>
<td>0.70</td>
<td>3.73</td>
</tr>
<tr>
<td>WWMH A2</td>
<td>2.60</td>
<td>0.70</td>
<td>4.33</td>
<td>1.09</td>
<td>3.73</td>
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</table>

**SW LINE**

<table>
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<tr>
<th>WW LINE B</th>
<th>PIPE LENGTH &amp; MH No.</th>
<th>GRADIENT &amp; PIPE SIZE</th>
<th>LID LEVEL</th>
<th>INVERT LEVEL</th>
<th>DEPTH TO INVERT</th>
</tr>
</thead>
<tbody>
<tr>
<td>WWMH B4</td>
<td>3.42</td>
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<tr>
<td>WWMH B5</td>
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<td>2.98</td>
</tr>
<tr>
<td>Datum R.L. 0.00</td>
<td>WW LINE C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>-----------</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>DEPT TO INVERT</strong></td>
<td><strong>DEPTH TO INVERT</strong></td>
<td><strong>INVERT LEVEL</strong></td>
<td><strong>LID LEVEL</strong></td>
<td><strong>GRADIENT &amp; PIPE SIZE</strong></td>
<td><strong>PIPE LENGTH &amp; MH No.</strong></td>
</tr>
<tr>
<td>Datum R.L. 0.00</td>
<td>WW LINE B</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>DEPT TO INVERT</strong></td>
<td><strong>DEPTH TO INVERT</strong></td>
<td><strong>INVERT LEVEL</strong></td>
<td><strong>LID LEVEL</strong></td>
<td><strong>GRADIENT &amp; PIPE SIZE</strong></td>
<td><strong>PIPE LENGTH &amp; MH No.</strong></td>
</tr>
</tbody>
</table>

**NOTEs:**
1. Indicates proposed finished ground level.
2. Indicates existing ground levels (pre earthworks).
3. Long-sections shown with 25% vertical exaggeration.
4. Pipe sizes, invert levels and depths are preliminary and will be confirmed at detailed design and engineering approval stage.
5. Levels are in terms of Wellington vertical datum (AHD) origin 1953 = 3-00.
6. All works to comply with the Wellington City Council Code of Land Development.
7. All wastewater pipes to be 160 OD PE100 (HPPE SDR 17.6) unless shown otherwise.
8. All manholes to be DN 1050 unless shown otherwise.
9. Contractor to check all invert levels against pipe size before laying. Adjustment of any invert levels is at the Contractor's own expense due to tight tolerances.
10. Pipe length shown is the length of pipe between centre of manholes.
11. Hardfill backfill all trenches below carriage way and 1m either side of pipe crossovers.
### NOTES:

1. **INDICATES PROPOSED FINISHED GROUND LEVEL**
2. **INDICATES EXISTING GROUND LEVEL (PRE EARTHWORKS)**
3. LONGSECTIONS ARE SHOWN WITH A 5x VERTICAL EXAGGERATION.
4. PIPE SIZES, INVERTS & GRADES AND MANHOLE DEPTHS ARE PRELIMINARY AND WILL BE CONFIRMED AT DETAILED DESIGN/ENGINEERING APPROVAL STAGE.
5. LEVELS ARE IN TERMS OF WELLINGTON VERTICAL DATUM 1953 ORIGIN RM II SO 31470 - RL 3.05.
6. ALL WORKS TO COMPLY WITH THE WELLINGTON CITY COUNCIL CODE OF LAND DEVELOPMENT.
7. ALL WASTEWATER PIPE TO BE 160 OD PE100 (HPPE SDR 17.6) UNLESS SHOWN OTHERWISE.
8. ALL MANHOLES TO BE DN 1050 UNLESS SHOWN OTHERWIZE.
9. CONTRACTOR TO CHECK ALL INVERTS AGAINST PIPE CLASHES BEFORE LAYING, ACCURACY OF ANY INVERT LEVELS AT MH CONTACTORS OWNED DUE TO TIGHT TOLERANCEs.
10. PIPE LENGTH SHOWN IS THE LENGTH OF PIPE BETWEEN CENTRE OF MANHOLES.
11. MATERIALS OF ALL TRENCHES BELOW CARRIAGEWAY AND 1m EITHER SIDE OF PIPE CROSSOVERS.

### Table:

<table>
<thead>
<tr>
<th>Datum R.L.</th>
<th>Depth To Invert</th>
<th>Invert Level</th>
<th>Lid Level</th>
<th>Gradient &amp; Pipe Size</th>
<th>Pipe Length &amp; MH No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>-3.00</td>
<td></td>
<td>3.05</td>
<td>-0.60</td>
<td>0.70%</td>
<td>79.0m</td>
</tr>
<tr>
<td>-1.00</td>
<td></td>
<td>4.13</td>
<td>-0.05</td>
<td>2.99</td>
<td>250 OD PE100 SDR 17</td>
</tr>
</tbody>
</table>

### Diagram:

![Diagram of wastewater longsections](image-url)
1. Indicates proposed finished ground level.
2. Indicates existing ground level (pre earthworks).
3. Long sections are shown with a 5x vertical exaggeration.
4. Pipe sizes, invert, and manhole depths are preliminary design and will be confirmed at detailed design/engineering approval stage.
5. Levels are in terms of Wellington vertical datum and origin RN 31470 RL 3.05.
6. All works to comply with the Wellington City Council Code of Land Development.
7. All wastewater pipe to be HDPE PE100 SDR 17.6 unless shown otherwise.
8. All manholes to be DN 1050 unless shown otherwise.
9. Contractor to check all invert against pipe clashes before laying, adjustment of manhole levels is at the contractors own risk due to tight tolerances.
10. Pipe length shown is the length of pipe between centre of manholes.
11. Hardfill backfill all trenches below carriageway and 1m either side of pipe crossings.

This design and drawing shall only be used for the purpose for which it was created and shall not be used otherwise without the permission of the engineer/registered architect. No liability is taken for any loss or damage due to any error or omissions in this drawing and drawing.
EXISTING MOUNT CRAWFORD RESERVOIR - RL ~160m

EXISTING SHELLY BAY RESERVOIR TO BE REPLACED - RL ~64m (LOCATION TO BE CONFIRMED AT DETAILED DESIGN/ENGINEERING APPROVAL STAGE)

SV 200 DIA TRUNKMAIN

SV 200 DIA WATERMAIN

NOTES:
1. CONTOURS SHOWN ARE EXISTING GROUND LEVELS AND ARE SHOWN AT 2.0m INTERVAL.
2. ALL LEVELS ARE IN TERMS OF WELLINGTON VERTICAL DATUM 1953 ORIGIN RM II SO 31470 - RL 3.05m.
3. ALL WORKS TO COMPLY WITH THE WELLINGTON CITY COUNCIL CODE OF LAND DEVELOPMENT.
4. ALL TRUNKMAIN AND WATERMAIN PIPE SIZES WILL BE CONFIRMED AT DETAILED DESIGN/ENGINEERING APPROVAL STAGE.
NOTES:

1. ALL WORKS TO COMPLY WITH THE WELLINGTON CITY COUNCIL CODE OF LAND DEVELOPMENT.

2. ALL TRUNKMAIN AND WATERMAIN pipe sizes will be confirmed at detailed design/Engineering approval stage.
NOTES:

1. **ALL WORKS TO COMPLY WITH THE WELLINGTON CITY COUNCIL CODE OF LAND DEVELOPMENT.**

2. **ALL TRUNKMAIN AND WATERMAIN PIPE SIZES WILL BE CONFIRMED AT DETAILED DESIGN/ENGINEERING APPROVAL STAGE.**
NOTES:
1. ALL WORKS TO COMPLY WITH THE WELLINGTON CITY COUNCIL CODE OF LAND DEVELOPMENT.
2. ALL TRUNKMAIN AND WATERMAIN PIPE SIZES WILL BE CONFIRMED AT DETAILED DESIGN/ENGINEERING APPROVAL STAGE.
NOTES:
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