



# LOWPRO 23/05 ROAD PLATE





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## INTENDED USAGE

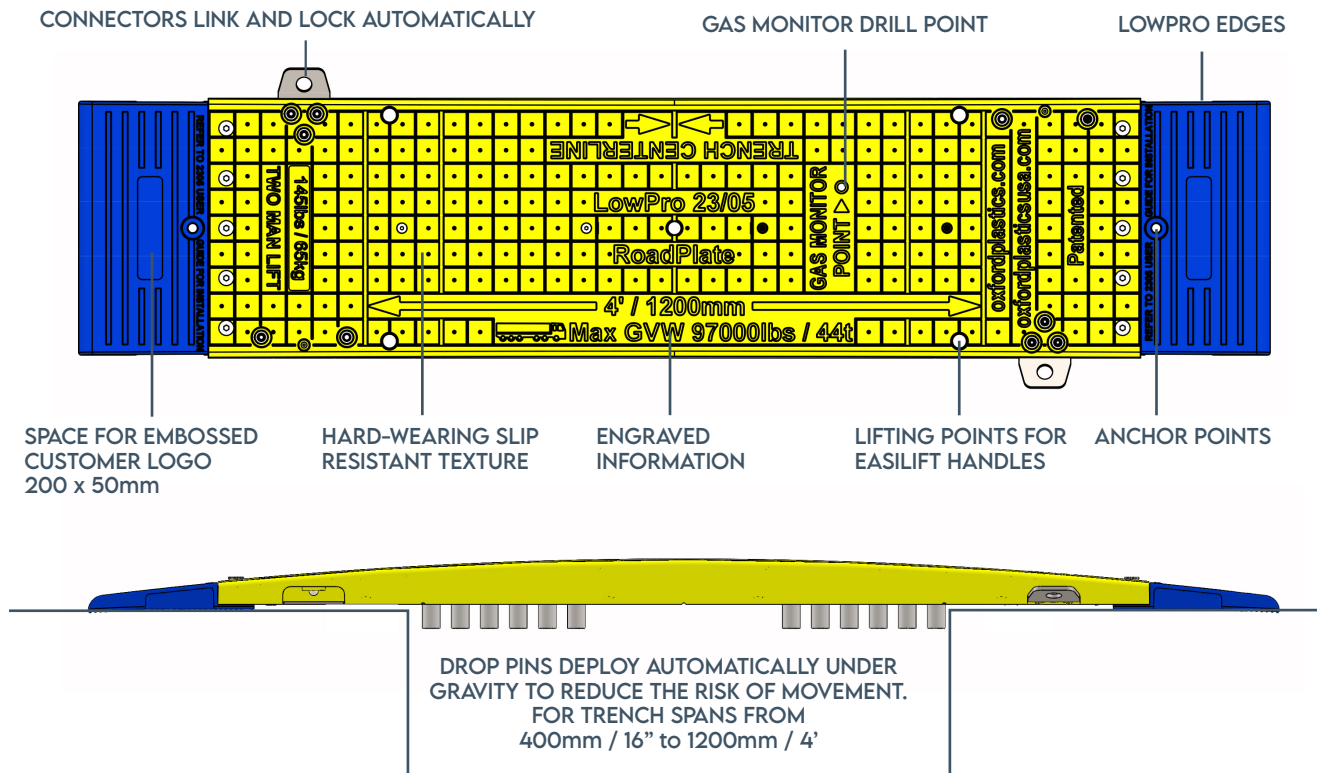
A site safety risk assessment (SSRA) must be carried out before installation and use of the product. This product has been designed and tested in the following scenarios using controlled conditions.

- Up to 1200mm / 48" trench width with the distributed load of a 44t / 97,000lbs vehicle.
- Up to 1500mm / 5' trench width with pedestrian foot traffic.
- The product is installed on a trench with rigid and secure walls, as defined in the SSRA, and the plate is secured to the ground via the anchor points and bolts suitable to the ground conditions, should the SSRA prescribe this.
- The product is static while in use.
- Slip resistance has been tested in both wet and dry conditions.
- The product is installed centrally over a trench by an experienced operator and is installed and manoeuvred using the EasiLift Handles.
- The product is clean and fully functioning.





## FEATURES



### ROBUST AND SAFE

Advanced composite technology construction, robust and durable.

Integral slip resistant texture.

Inclined rubberised LowPro Edges prevent damage to road and reduce impact on vehicles. No need to 'cold patch'.

Proven to work in ambient temperatures of +50°C to -30°C.

Non-metal construction reduces theft.

### QUICK INSTALLATION

Can be manually handled without the need for heavy lifting equipment.

Quick to Install, with in-built linking and locking system.

Drop Pins are automatically deployed underneath to reduce the risk of movement on trenches.

All parts replaceable.

Anchor points to bolt plates to the ground, SSRA dependent.

### EXTRAS

Supplied with EasiLift Handles to aid manual handling.

Stillages can be supplied for transit and storage.

Gas monitor point allows gas measurements to be taken without removing the Road Plate.

LowPro Edges can be customised with Customer Logos. MOQ 40 off for inner, 20 off for outer.

Use Road Plate end pieces to create a ramp at both ends.

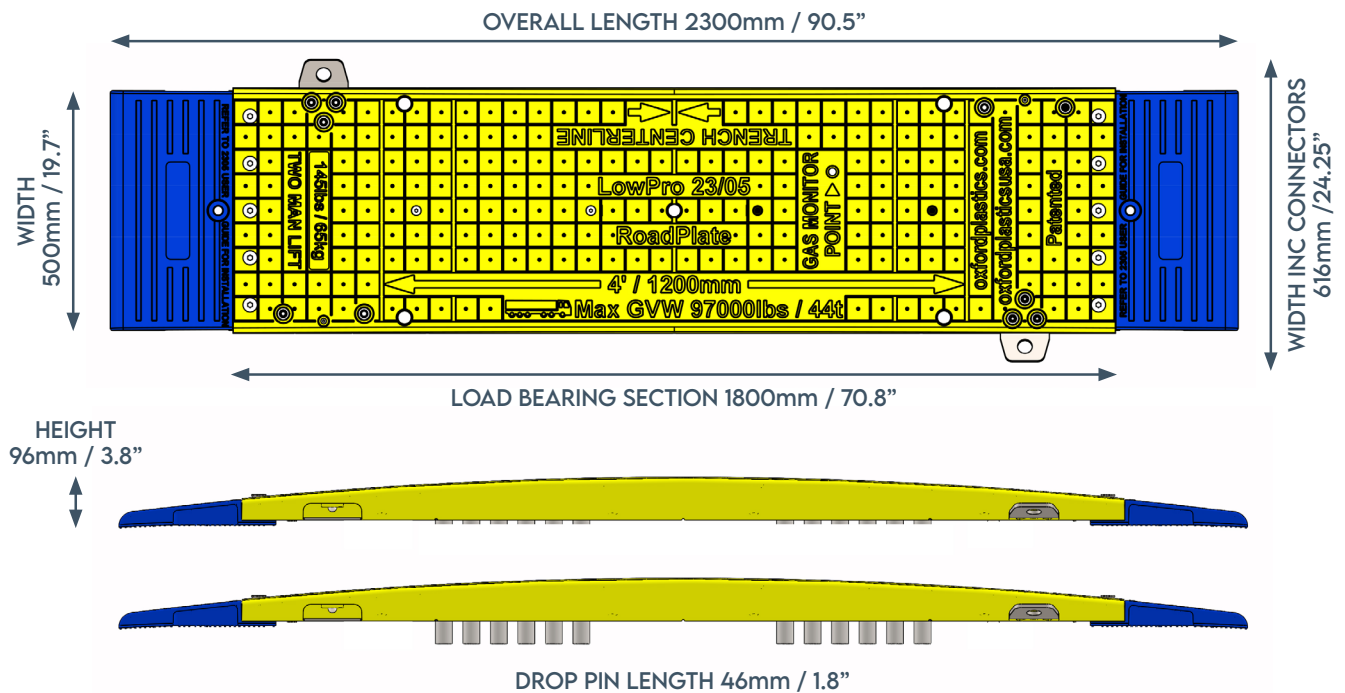




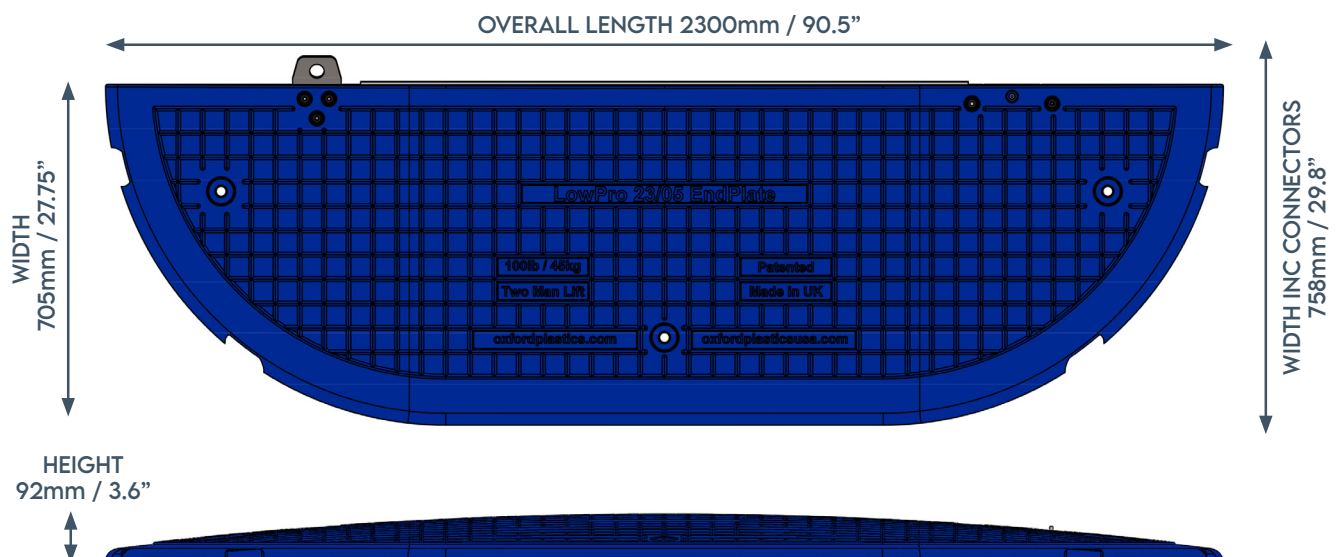


## DIMENSIONS AND WEIGHTS

### LOWPRO 23/05 ROAD PLATE - INNER PIECE 65kg / 145lb



### LOWPRO 23/05 ROAD PLATE - END PIECE 27kg / 60lb

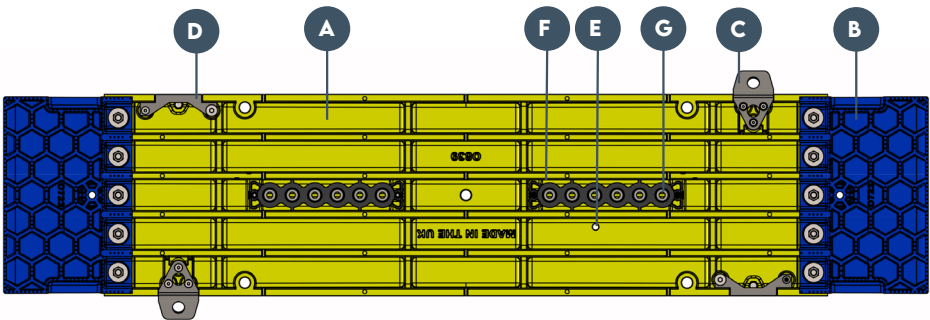




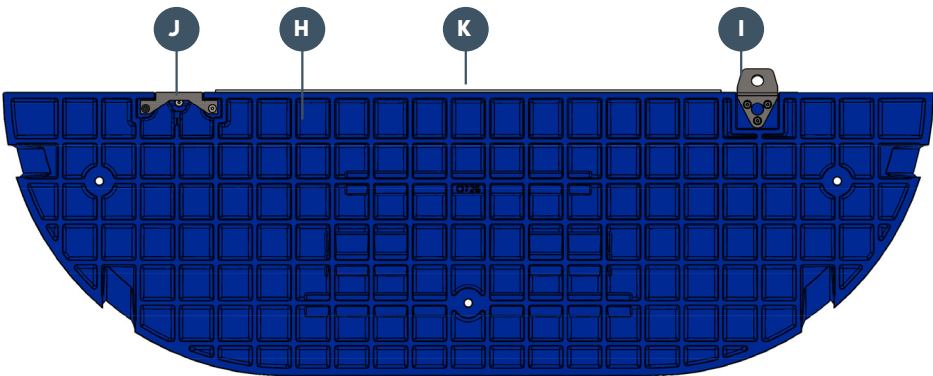
# MATERIAL COMPOSITION AND PRODUCT LIFE

All elements use materials that if maintained correctly will not structurally degrade in UV light, in the presence of water or salts, and are stable in ambient temperatures from +50°C to -30°C.

Batches are regularly load tested in the Oxford Plastics test facility as part of the quality control process.



INNER PIECE	Part Name	Material
A	Main Body	Glass fibre reinforced polyester resin sheet moulding compound + mild steel encapsulated rebar grid
B	LowPro Edge	5% Elastomer, 95% LDPE
C	Male Connector Plate	Galvanised mild steel
D	Female Connector Plate	Galvanised mild steel
E	Gas Monitoring Bung	HDPE
F	Drop Pin Tray	PP/PE
G	Drop Pins	Stainless steel

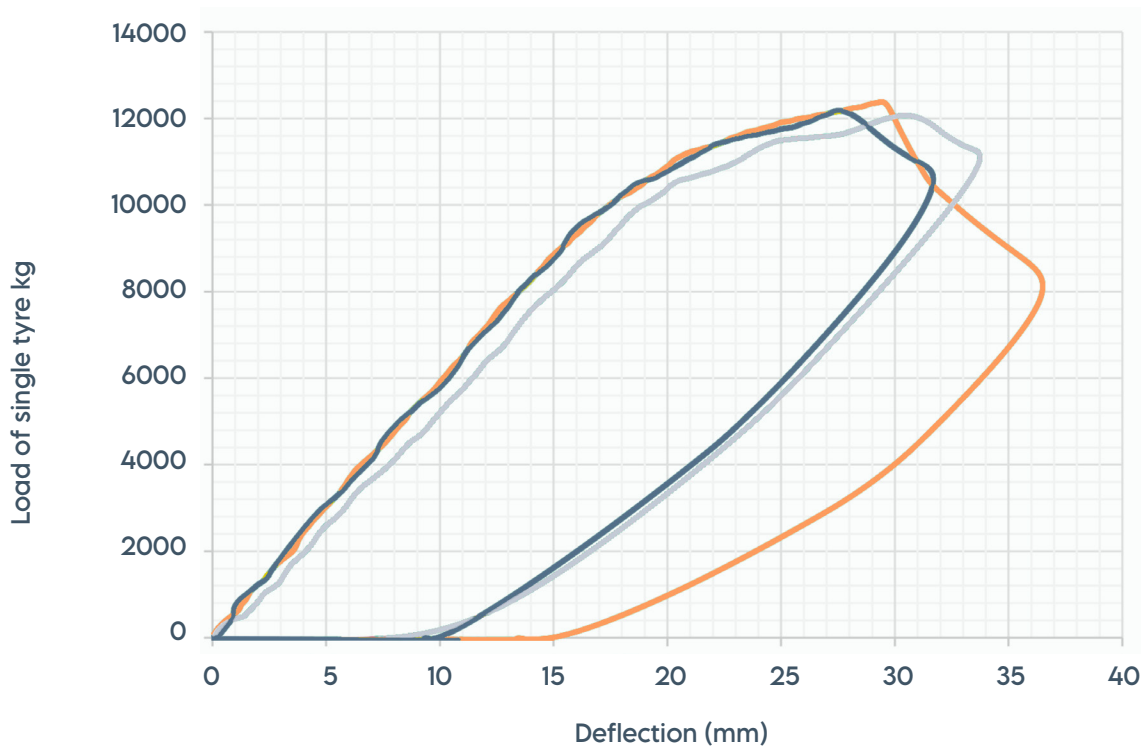


END PIECE	Part Name	Material
H	Main Body	5% Elastomer, 95% LDPE
I	Male Connector Plate	Galvanised mild steel
J	Female Connector Plate	Galvanised mild steel
K	Reinforcing Pultrusion	Glass fibre reinforced polyester resin





## LOAD DEFLECTION DATA



### Deflection at 6000kg / 13,228lb

10.6mm / 0.42"

### Ultimate load at failure

12,210kg / 26,918lb

Destructive testing has been carried out on the product to simulate deflection under the working load, and ultimate failure.

The testing is carried out by trained staff at Oxford Plastics' specialist testing facility.

Results given are an average of 3 tests of different units.

Tab Data for the USA can be found in Appendix A.

Products are designed and tested to HAUC 2018/01 Advice Note.

### PRODUCT RATING

The product is rated for use over spans of maximum 1200mm / 4' by vehicles with a GVW of up to

**44t /  
97,000lb**

### TEST SPECIFICATION

**Span**  
1200mm / 4'

**Load Footprint**  
250mm / 9.8" diameter pad with rubber base to simulate single tyre

**Load Location**  
Centre of product





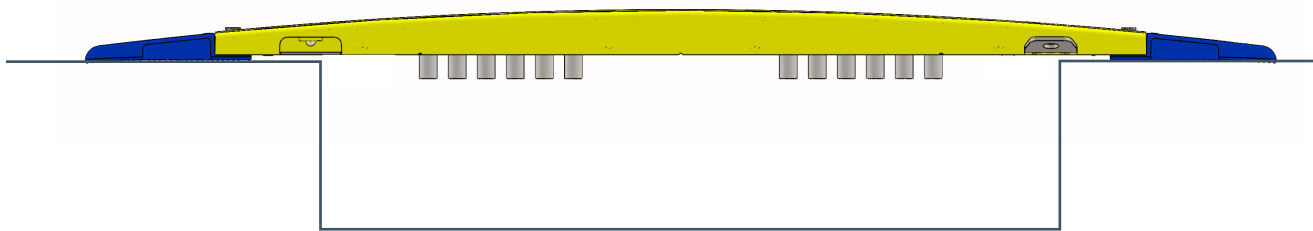
# LOAD RATING FOR PEDESTRIAN ONLY USAGE

For scenarios where the product will only experience loads of up to 400kg then the maximum span can be increased to 1500mm / 5'.

The installer should carry out a risk assessment to ensure the edge of the trench is stable enough.

The product must be positioned centrally on the trench.

Note the drop pin system will not work at spans over 1200mm / 4'.



PEDESTRIAN ONLY USE	Metric	Imperial
Max Span	1500mm	5'
Max Load	400kg	880lb





## SLIP RESISTANCE

Slip resistance testing has been carried out by an independent test house, in line with the requirements of UK HSE 2012 document 'Testing the slip resistance of flooring'.

Testing was carried out in wet and dry conditions, using a calibrated Munro slip tester using Slider 55.

Tests align also with ASTM Standard and AS/NZS Standard.



### CLASSIFICATIONS

High Slip Potential  
0-24

Moderate Slip Potential  
25-35

Low Slip Potential  
36+

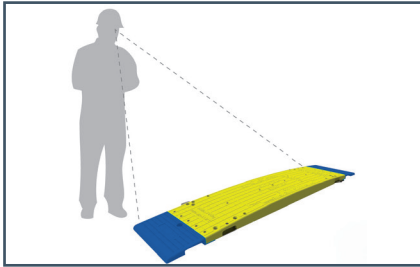
SLIDER 55 TEST	Median result	Slip potential	Slip risk
Dry	110	LOW SLIP POTENTIAL	1 in 1,000,000+
Wet	66	LOW SLIP POTENTIAL	1 in 1,000,000+



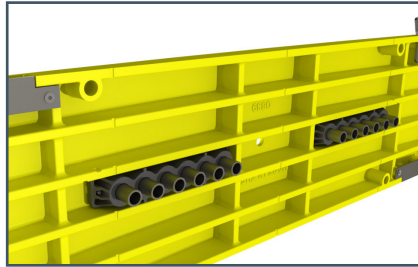


## INSPECTION AND MAINTENANCE

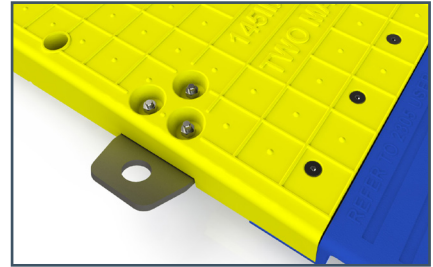
Products should be inspected and cleaned between every installation as follows. This includes but is not limited to:



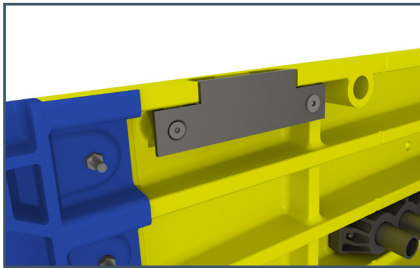
Inspect each product for signs of damage. See next page for signs of damage.



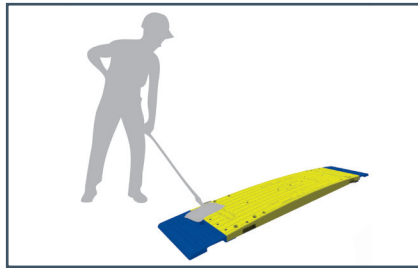
Ensure all drop pins are moving freely and the drop pin tray is tightened before use.



Ensure bolts on top surface are tight

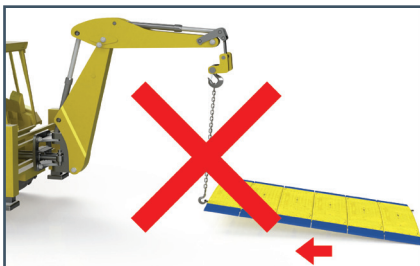


Ensure bolts on underside are tight

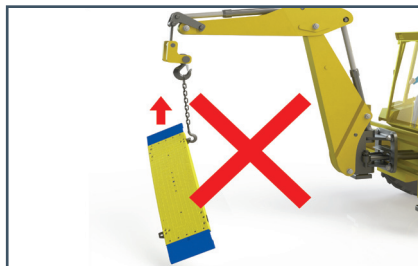


Clean product to remove debris, to maintain slip resistance properties

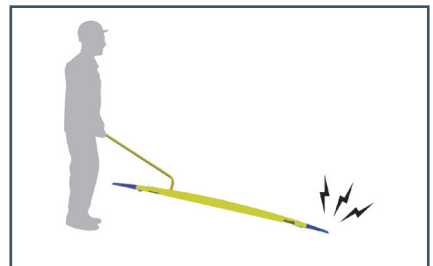
Care for the product by following the below guidance:



Do not drag the product



Do not lift the product as shown



Do not drop the product





## INSPECTION AND MAINTENANCE

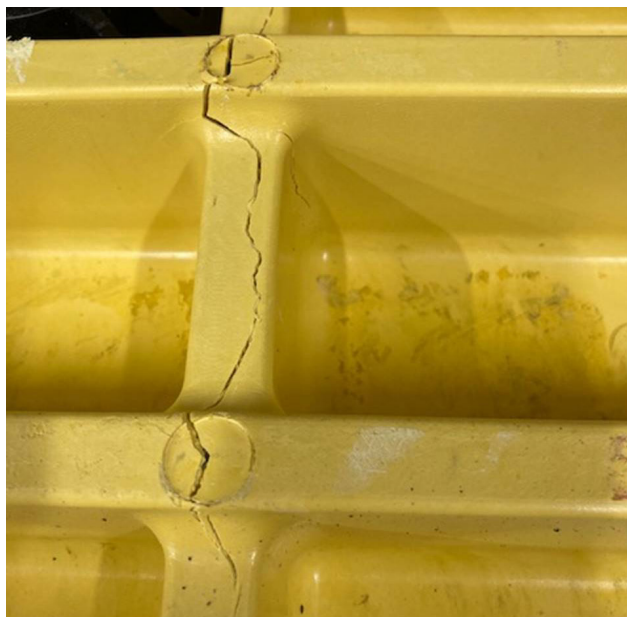
The images below show some signs to check for during inspection. This list is not exhaustive.

Cracks or a bent product indicate it has been damaged through improper use.

These products must be disposed of.



Crack along rib



Close up of crack



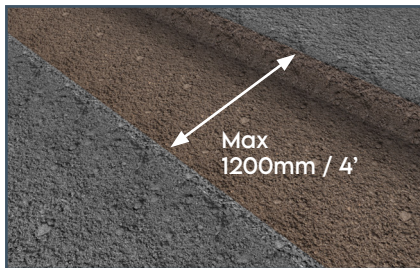
The underside of the yellow section of the product is visibly bent.  
It should be flat.

# INSTALLATION AND SAFE HANDLING

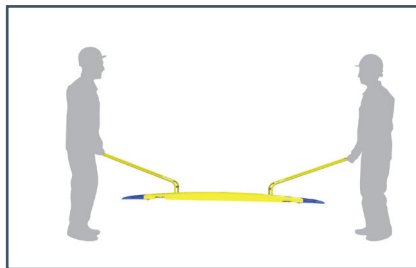
Risk assessments must be carried out to ensure the usage is suitable for the scenario.

Every section has the facility to be bolted down individually. The SSRA must advise whether bolts are necessary for the installation.

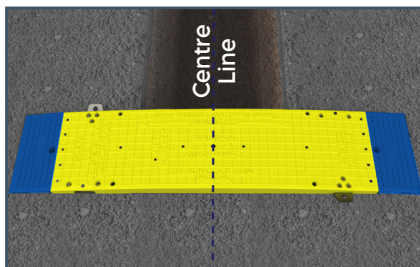
The product is designed to be used in the following scenarios.



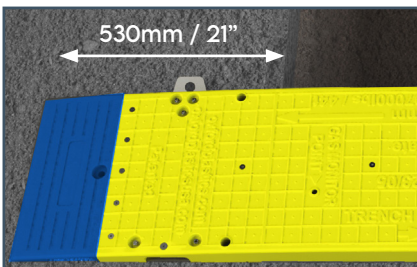
Trench width less than 1200mm / 4'. Trench walls are stable.



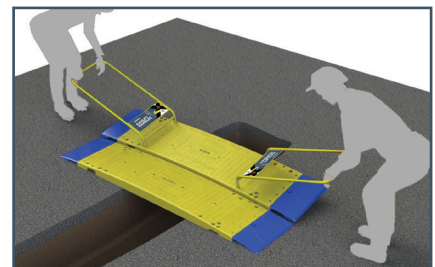
Two person lift at all times. EasiLift Handles are inserted into the holes at each end of the inner pieces.



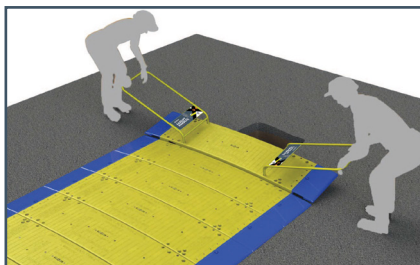
The first Inner Piece is positioned using the centerline as a guide.



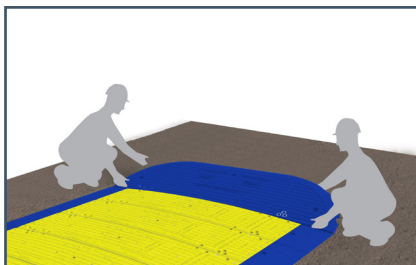
There is a minimum overlap of 530mm / 21" for every piece.



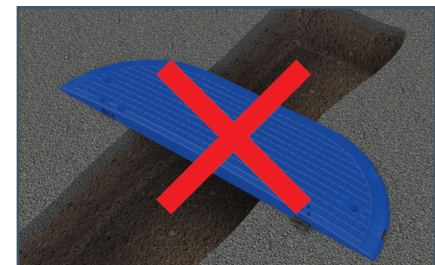
Each piece connects into next piece, when engaged, gently lower the piece.



Repeat until the entire trench is covered with Inner Pieces.



Connect the End Piece.



The End Piece is not load bearing and is not installed over an excavation.

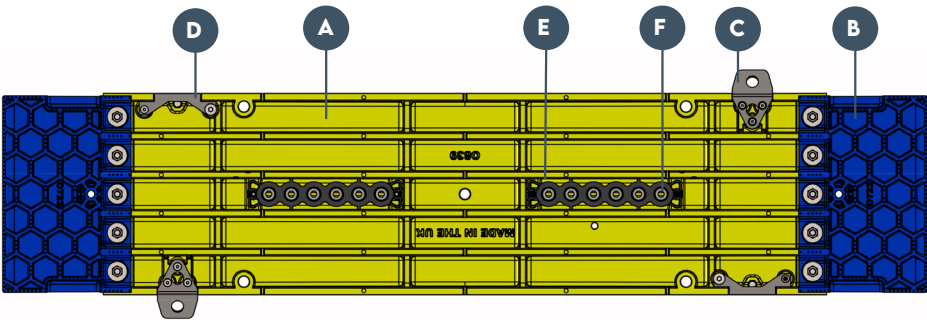
Road Plates are designed for vehicles to travel across in a straight line. Plates are securely bolted down, the bolt holes accept M16 x 150mm & 5/8" x 6" Masonry Anchor bolts. Oxford Plastics has driven over the products at 30mph/48kph, they are designed for use on low speed roads.



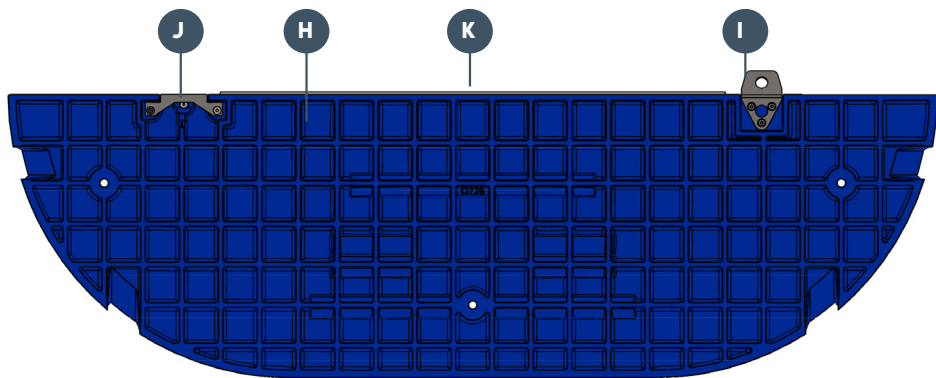


# REPLACEMENT PARTS AND TRACING

Parts are bolted together, enabling elements to be replaced easily in the unlikely event of damage



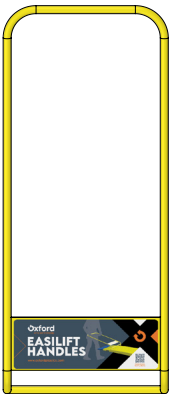
INNER PIECE	Part Name	Product Code
A	Main Body	O839
B	LowPro Edge	O719
C	Male Connector Plate	O724
D	Female Connector Plate	O724
E	Drop Pin Tray	O811
F	Drop Pins	O831



END PIECE	Part Name	Product Code
G	Main Body	O726
H	Male Connector Plate	O724
I	Female Connector Plate	O724

## TRACING

Products have a waterproof label with a unique bar code and ID number, enabling tracing to the batch and date of manufacture.

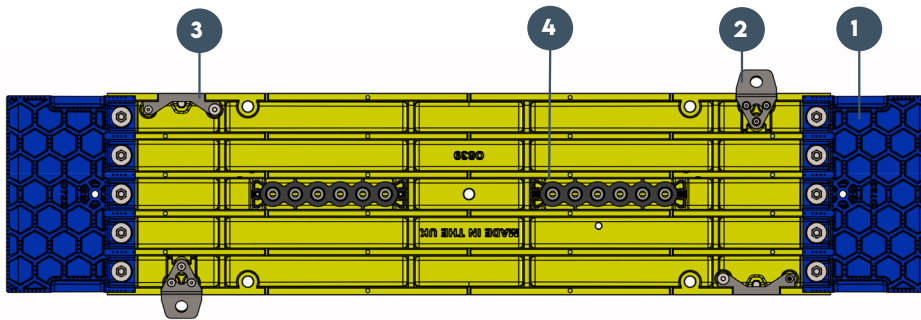


EASILIFT HANDLE  
Product Code  
O730



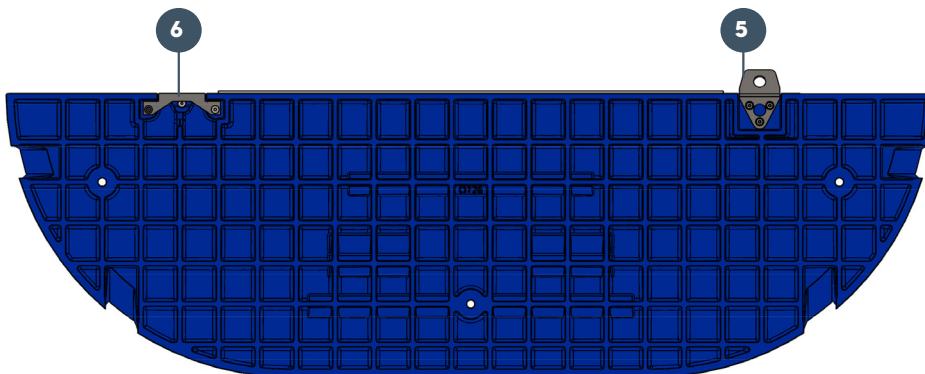


## REPLACEMENT FIXINGS



All fixings  
Stainless Steel

Fixings for	Metric	Imperial
1 LowPro Edge	TEN M8 CSNK MACHINE SCREW X 30 LNG TEN M8 WASHERS x 50 OD TEN M8 LOCK NUTS	TEN 5/16" CSNK MACHINE SCREW X 1.1/4" LNG TEN 5/16" WASHERS x 2" OD TEN 5/16" LOCK NUTS
2 Male Connector Plate	SIX M8 CSNK SOC HD MACHINE SCREW X 50 LNG SIX M8 LOCK NUTS SIX M8 WASHERS x 24 OD	SIX 5/16" CSNK SOC HD MACHINE SCREW X 2" LNG SIX 5/16" LOCK NUTS SIX 5/16" WASHERS x 1" OD
3 Female Connector Plate	TWO M8 CSNK SOC HD MACHINE SCREW X 50 LNG TWO M8 CSNK SOC HD MACHINE SCREW X 65 LNG FOUR M8 LOCK NUTS FOUR M8 WASHERS x 24 OD TWO M10 HEX DOME NUT TWO M10 CSNK MACHINE SCREW X 30 LNG	TWO 5/16" CSNK SOC HD MACHINE SCREW X 2" LNG TWO 5/16" CSNK SOC HD MACHINE SCREW X 2.1/2" LNG FOUR 5/16" LOCK NUTS FOUR 5/16" WASHERS x 1" OD TWO 3/8" HEX DOME NUT TWO 3/8" CSNK MACHINE SCREW X 1.1/4" LNG
4 Drop Pin Tray	FOUR M8 CSNK MACHINE SCREW X 30 LNG FOUR M8 LOCK NUTS	FOUR 5/16" CSNK MACHINE SCREW X 1.1/4" LNG FOUR 5/16" LOCK NUTS

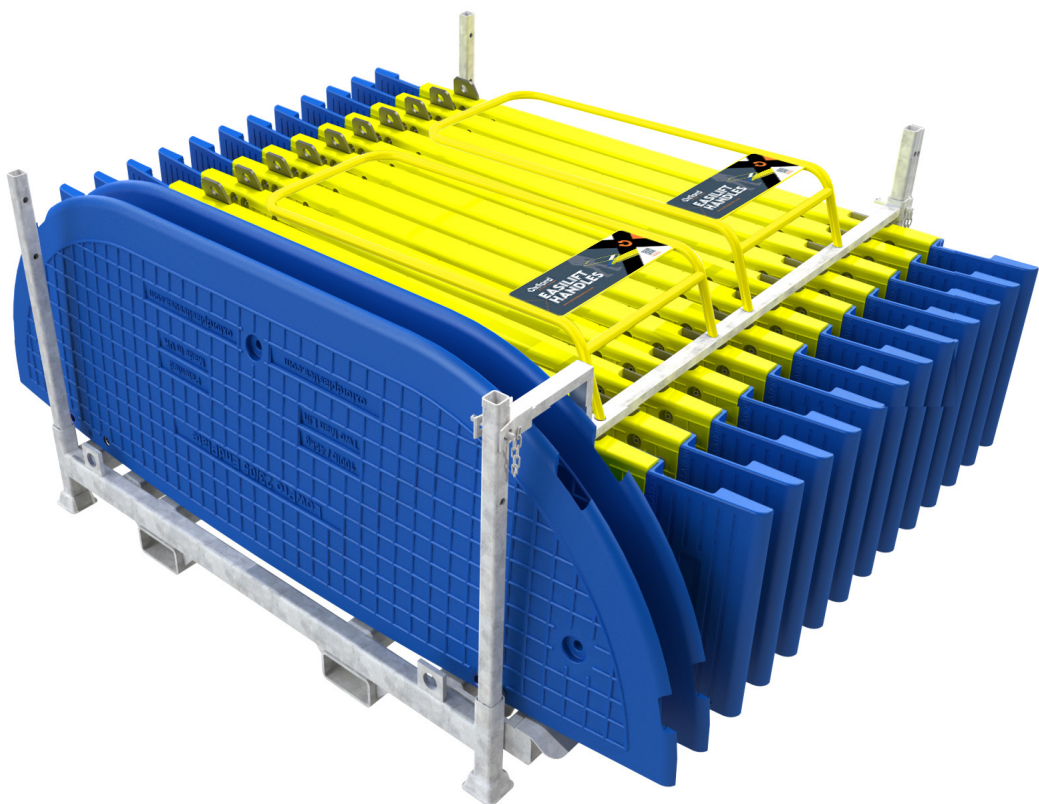


Fixings for	Metric	Imperial
5 Male Connector Plate	SIX M8 CSNK SOC HD MACHINE SCREW X 50 LNG SIX M8 LOCK NUTS SIX M8 WASHERS x 24 OD	SIX 5/16" CSNK SOC HD MACHINE SCREW X 2" LNG SIX 5/16" LOCK NUTS SIX 5/16" WASHERS x 1" OD
6 Female Connector Plate	TWO M8 CSNK SOC HD MACHINE SCREW X 50 LNG TWO M8 CSNK SOC HD MACHINE SCREW X 65 LNG FOUR M8 LOCK NUTS FOUR M8 WASHERS x 24 OD TWO M10 HEX DOME NUT TWO M10 CSNK MACHINE SCREW X 30 LNG,	TWO 5/16" CSNK SOC HD MACHINE SCREW X 2" LNG TWO 5/16" CSNK SOC HD MACHINE SCREW X 2.1/2" LNG FOUR 5/16" LOCK NUTS FOUR 5/16" WASHERS x 1" OD TWO 3/8" HEX DOME NUT TWO 3/8" CSNK MACHINE SCREW X 1.1/4" LNG





# STILLAGE



The LowPro 23/05 Road Plate can be supplied with a specially designed stillage.

The Stillage can carry 12 x Inner Pieces, 2 x End Pieces and 2 x EasiLift handles. It also includes a storage box for bolts and tools.

The stillage can be disassembled for compact storage, and can be lifted with a fork lift or with chains.

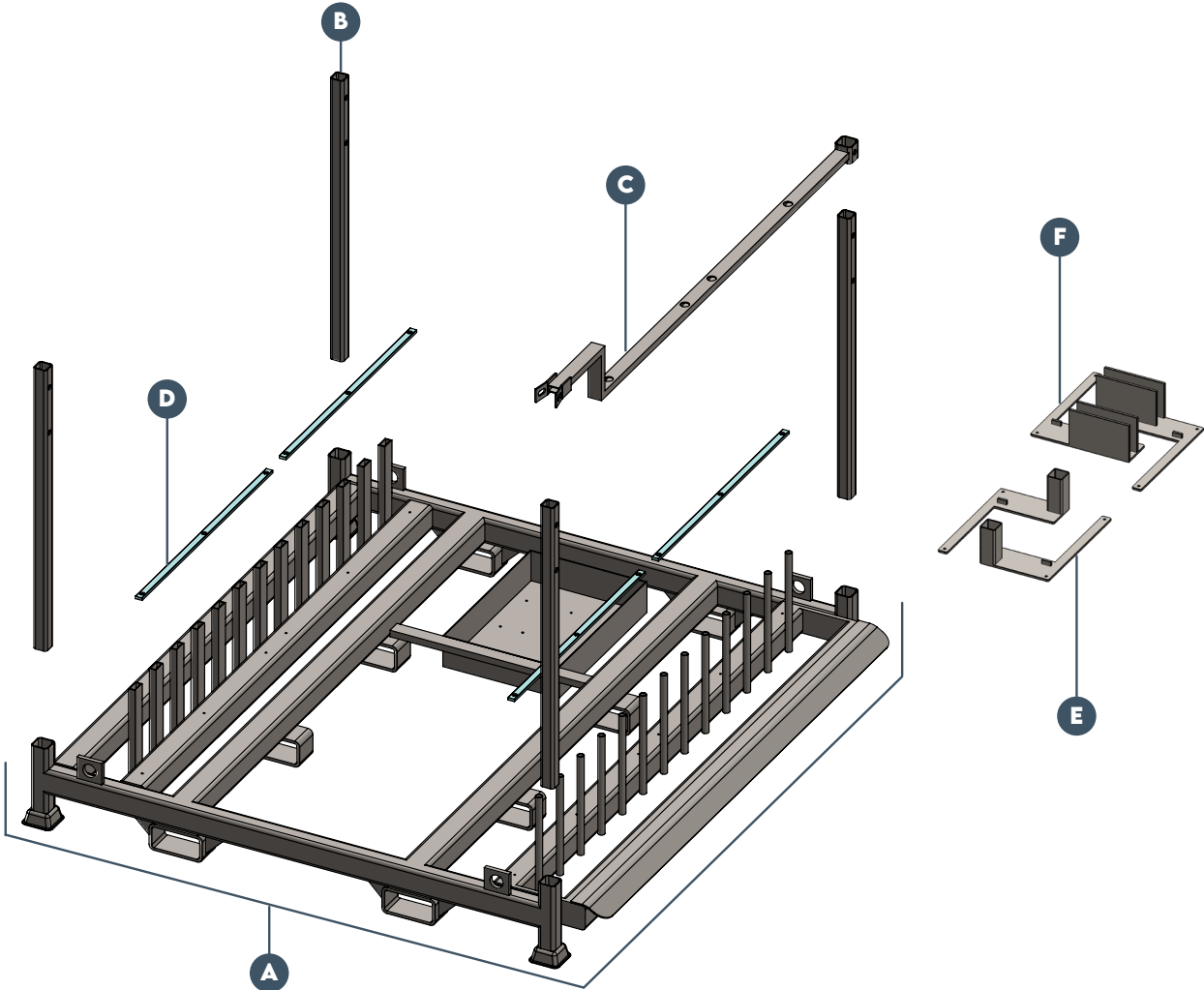
## 2305 STILLAGE

PRODUCT CODE	O731
WEIGHT	197kg / 434lb (Laden 910kg / 2006lb)
HEIGHT	908mm / 35.8"
LENGTH	1724mm / 68.0"
WIDTH	1779mm / 70.0"
MATERIAL	Mild steel
FINISH	Galvanised
CUSTOMISE	Custom sizes on request, subject to MOQ





# STILLAGE REPLACEMENT PARTS AND TRACING



STILLAGE	Part Name	Product Code
A	Stillage Full Assembly	O731
B	Stillage Vertical Spacers	O7311
C	Stillage Locking Bars	O7312
D	Stillage Nylon Bar Runner	O7313
E	Pedestrian Bridge Adaptor Box Section	O841
F	Pedestrian Bridge Adaptor Upright	O842





## SUSTAINABILITY

Oxford Plastics are dedicated to sustainability. We build the circular economy into our products by designing them to be easy to use, long-lasting, repairable and recyclable.

The LowPro Road Plates, a direct replacement for steel plates, are a much more sustainable solution when compared.



**LowPro Road Plates reduce up to 78% of CO2e compared with heavy steel road plates\*.**

\*Please refer to Oxford Plastics Carbon Footprint & Product Report for more information





## ASSOCIATED PRODUCTS

When setting up a street works site, other Oxford Plastics solutions can be used to ensure compliance is achieved. Browse our Chapter 8 solutions; including advanced barrier systems, trench covers, road plates, wheelchair ramps and street works signs.



**ADVANCED  
BARRIER SYSTEMS**



**PORTABLE  
GATE BARRIERS**



**STREET WORKS  
SIGNS**



**WHEELCHAIR  
RAMPS**



**TRENCH  
COVERS**














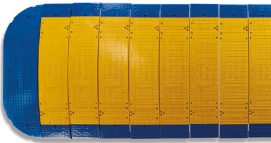
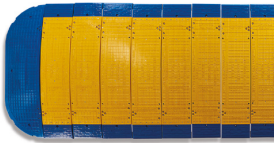
**ROAD  
PLATES**



# TRENCH COVER GUIDE

## COMPOSITE TRENCH COVERS CAN BE INSTALLED IN THE FOLLOWING SCENARIOS.

- ▶ A Site Safety Risk Assessment must be carried out before installation, only install on compacted surfaces such as concrete or asphalt. Always place the trench cover centrally over the excavation.
- ▶ In some instances, road plates and trench covers must be bolted for safety, refer to the installation guide for more details.
- ▶ Trench covers have a maximum width allowance.
- ▶ Trench covers can be linked together to safely cover any length of excavation.
- ▶ The LowPro range is HAUC Compliant.
- ▶ LowPro 15/05 and LowPro 23/05 are HS20-44 load rated.
- ▶ Trench covers must be installed centrally over the trench.

MAXIMUM TRENCH WIDTH	WHAT TYPE OF TRAFFIC WILL CROSS THE TRENCH?		
	FOOTWAY 400KG / 880LBS	DRIVEWAY 3.5T / 7715LBS VEHICLE	ROADWAY 44T / 97000LBS VEHICLE
100 <sup>MM</sup> 4"	 LowPro 100	 LowPro 100	 LowPro 15/05
700 <sup>MM</sup> 2 <sup>FT</sup>	 LowPro 12/8  LowPro 11/11	 LowPro 15/10	 LowPro 15/05
900 <sup>MM</sup> 3 <sup>FT</sup>	 LowPro 15/10	 LowPro 15/10	 LowPro 23/05
1200 <sup>MM</sup> 4 <sup>FT</sup>	 LowPro 15/10	 LowPro 23/05	 LowPro 23/05





## CODE COMPLIANCE



### WHAT IS REGULATORY COMPLIANCE?

UK: The Street Works manual, HAUC 2018/01 advice note, Department for Transport TAL 6/14 and BS7976.

Germany: Entspricht den Vorgaben der RSA21/ZTV-SA 97

USA: HS20-44, AASHTO H25 and HS25 Loading Compliant

The LowPro 23/05 Road Plate is compliant with the above regulations for streetworks use







## HISTORY OF USE

Our composite Road Plates and Trench Covers have been used extensively:



### METROPOLITAN USERS

London  
New York  
Paris  
Munich  
Seoul  
Madrid  
San Francisco  
Tokyo  
Sydney



### UTILITY USERS

Gas  
Water  
Telecoms  
Electricity





## CONTACT INFORMATION

### UK & R.O.W

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Tel: +44(0)1608 678888

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DE  
19805  
USA

[info@oxfordplasticsusa.com](mailto:info@oxfordplasticsusa.com)  
1-800-567-9182

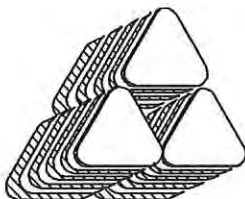




## APPENDIX A

**USA Engineering approval tabulated data**  
See following pages





# **J.M. TURNER ENGINEERING, INC.** **CONSULTING ENGINEERS**

CIVIL, STRUCTURAL, & CONSTRUCTION ENGINEERING

1325 College Avenue \* Santa Rosa, CA 95404 \* Phone (707) 528-4503 \* Fax (707) 528-4505

## **E-MAIL TRANSMITTAL COVER SHEET**

TO: David Sardinha/Peter Creighton  
COMPANY: Oxford Plastics  
PHONE: 401-497-0821  
E-MAIL: See Below

FROM: Hans Vermeulen  
DATE: 7/24/2019  
PAGES: 09 including cover sheet  
RE: 23/05 Manufacturers TD Sheet

E-MAILED BY: Sarah R. TIME: 10:00 am

### **MESSAGE:**

[David.sardinha@oxfordplasticsusa.com](mailto:David.sardinha@oxfordplasticsusa.com) ; [peter.creighton@oxfordplastics.com](mailto:peter.creighton@oxfordplastics.com) Job #17018-1

Mailed copies are available upon request.

Thank you!



# OXFORD PLASTICS USA.

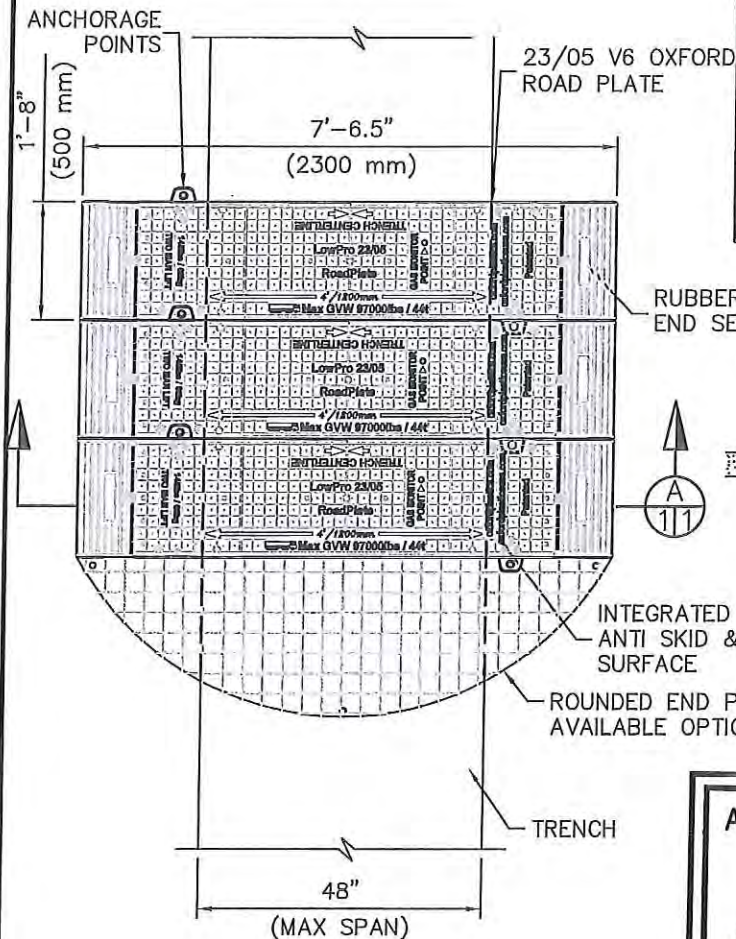
## MANUFACTURERS TABULATED DATA SHEET

### 23/05 V6 OXFORD ROAD PLATE

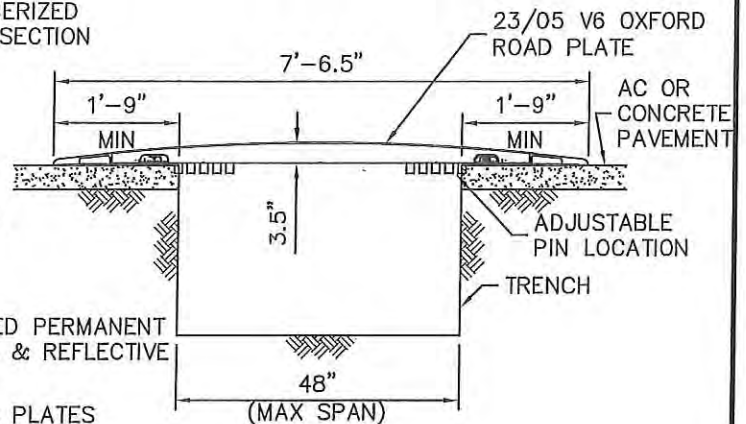
#### BASED ON HS-20-44 LOADING

PLATE SIZE (FT)	MAX. SPEED (MPH)	MAX. ALLOW. SPAN (FT)	DESIGN IMPACT FACTOR
1'-8" x 7'-6.5" (0.5m x 2.3m)	< 30	4'-0"	1.3
1'-8" x 7'-6.5" (0.5m x 2.3m)	> 30 *	4'-0"	1.3

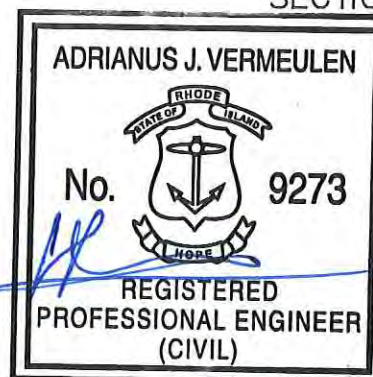
\* ANCHORAGE REQUIRED



**PLAN VIEW**



**SECTION A 11**



#### NOTES:

1. PLATE MATERIAL TO BE GLASS REINFORCED POLYESTER W/ STEEL REINFORCEMENT.
2. PLATES ARE DESIGNED FOR HS-20-44 LOADING = 32,000 lb AXLE, 16,000 lb TIRE LOAD WITH IMPACT FACTOR OF 1.3.
3. THE MAX SPAN IS MEASURED FROM ASPHALT OR CONCRETE EDGE TO ASPHALT OR CONCRETE EDGE.
4. CHART IS BASED ON STABLE TRENCH. STABILITY TO BE DETERMINED BY COMPETENT PERSON OR PROFESSIONAL ENGINEER. SHORING MAYBE REQUIRED.
5. IF SPEED EXCEEDS 30 mph, PLATE MAY REQUIRE ANCHORAGE.
6. SEE MANUFACTURES INFO FOR USE AND GUIDANCE.
7. THE INSTALLATION OF THE OXFORD ROAD PLATES MUST NOT PRESENT A HAZARD TO CYCLISTS OR MOTOR CYCLES.

#### TITLE:

23/05 V6 OXFORD ROAD PLATE

### OXFORD PLASTICS USA.

101 DEXTER ROAD  
PROVIDENCE, RI. 02914



**J.M. TURNER ENGINEERING, INC.**  
**CONSULTING ENGINEERS**

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DATE:

07/22/19

REVISED:

FILE NO:

17018-1/P1



# OXFORD PLASTICS USA.

MANUFACTURERS TABULATED DATA SHEET

23/05 V6 OXFORD ROAD PLATE

## ADDITIONAL LICENSES



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

Adrianus J. Vermeulen

Date 7/24/2019 License # 48822

TITLE:

23/05 V6 OXFORD ROAD PLATE

**OXFORD PLASTICS USA.**

101 DEXTER ROAD  
PROVIDENCE, RI. 02914

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17018-1/P2



# OXFORD PLASTICS USA.

MANUFACTURERS TABULATED DATA SHEET

23/05 V6 OXFORD ROAD PLATE

## ADDITIONAL LICENSES



TITLE:

23/05 V6 OXFORD ROAD PLATE

OXFORD PLASTICS USA.

101 DEXTER ROAD  
PROVIDENCE, RI. 02914

J.M. TURNER ENGINEERING, INC.  
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**J.M. TURNER  
ENGINEERING, INC.**

**Consulting Engineers**

CIVIL ENGINEERING • STRUCTURAL ENGINEERING  
CONSTRUCTION ENGINEERING

**23/05 OXFORD ROAD PLATE  
TABULATED DATA**

**48" MAX CLEAR SPAN TRENCH OPENING**

**OXFORD PLASTICS USA  
101 Dexter Road  
Providence, Rhode Island**

Design of 23/05 V6 Oxford Road Plate is based on HS20-44 Traffic Loading with an Impact Factor of 1.3. The maximum allowable clear span = 48 inches (1200 mm). Road Plate size is 1'-8" x 7'-6.5" (500 mm x 2300 mm)

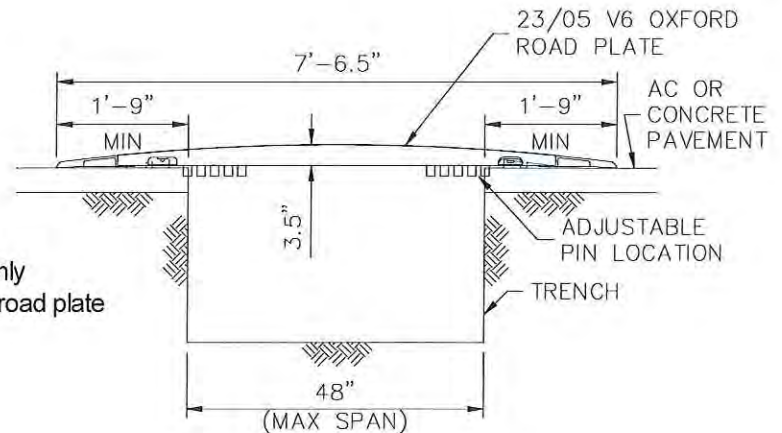


DATE: 07/22/2019  
DESIGN BY: A.J.V.  
SHEET NO: 1 of 5  
JOB#: 17018-1



**J.M. TURNER ENGINEERING, INC.**

1325 COLLEGE AVENUE  
SANTA ROSA, CA 95404  
PH# : (707) 528-4503  
FAX# : (707) 528-4505

SUBJECT: Oxford Plastics USASHEET NO.: 2 OF    23/05 V6 Road Plate Tabulated DataBY: AJV DATE: 07/22/19Road Plate CalculationsCHKD BY:     DATE:    Check Worst Case Loading From HS-20-44:Axle Load (kips):  $P_{axle} := 32.0$ Tire Load (kips):  $P_{tire} := 16.0$ Impact Factor:  $IF := 1.3$ Design Load (kips):  $P := P_{tire} \cdot IF$   $P = 20.8$ Width of Axle (ft):  $D := 6$  note that there will only  
be one tire load per road plateSpan Length (ft):  $L_{span} := 4.0$  (1200mm)23/5 Road Plate capacity based on HS20-44 Load Testing including 1.3 impact factor:Ultimate testing Load (Metric Tonnes):  $P_{tonnes} := 12.0$ Ultimate Load (kips):  $P_{ult} := P_{tonnes} \cdot 2.2$   $P_{ult} = 26.4$ Factor of Safety of Plate:  $FS := \frac{P_{ult}}{P}$   $FS = 1.27$  compared to HS20-44 loading ...**OK**23/5 Road Plate deflection capacity based on Load Testing:Maximum deflection at testing load (mm)  $Mdf_{max} := 25$  mmMaximum deflection at breaking point (In)  $Mdf_l := \frac{Mdf_{max}}{25.4}$   $Mdf_l = 0.98$  < 1.0 Inches Allowable .. OK

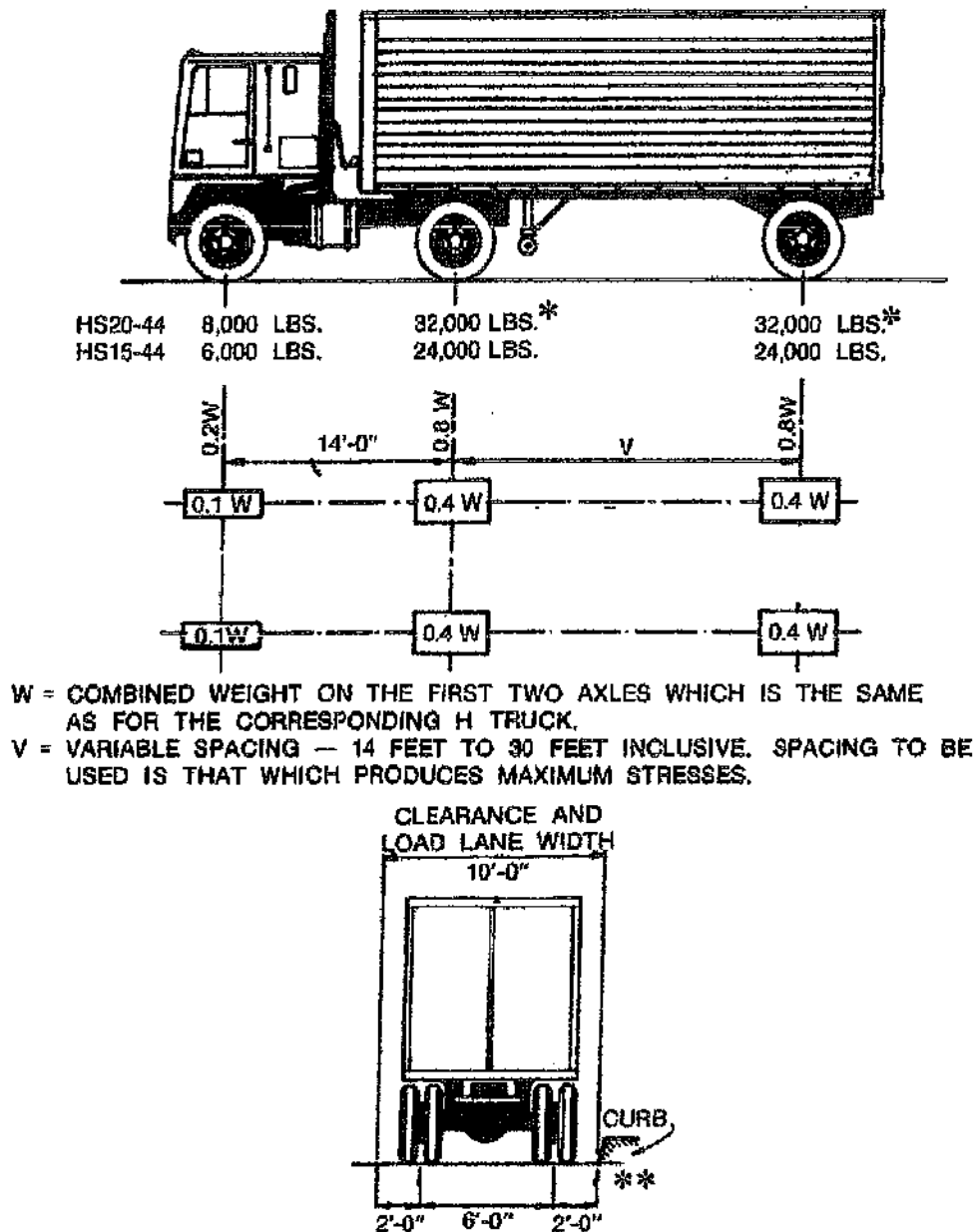


FIGURE 3.7.7A Standard HS Trucks

\* In the design of timber floors and orthotropic steel decks (excluding transverse beams) for H 20 loading, one axle load of 24,000 pounds or two axle loads of 16,000 pounds each spaced 4 feet apart may be used, whichever produces the greater stress, instead of the 32,000-pound axle shown.

\*\* For slab design, the center line of wheels shall be assumed to be 1 foot from face of curb. (See Article 3.24.2)